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The Grant Mausoleum, New York.

THE conditions under which public monuments are erected in the United States are not favourable to the creation of great works of art. The Congress, as well as the State and municipal authorities throughout the Union, are notably susceptible to the blandishments of the "promoter," and vast sums of money have been lavished upon memorials, architectural and sculptural, which had they been wisely expended, would have produced many notable memorials. It is only within recent years, since the Centennial Exhibition in Philadelphia in 1876, in fact, that the Americans appear to have awakened to the value of civic art; and architecture, alone, or in conjunction with sculpture, has assumed an importance that has given these sister arts a real artistic value and meaning with the people. The Exhibition at Chicago was an object lesson in monumental art, notwithstanding the perishable material of which the buildings and their adornments were composed, which must long have its influence on the American people. Artists and experts may, indeed, differ as to the real value of that display, but its educational value to the people at large was unquestionably very great.

Meanwhile, the work of erecting monuments to the great dead of the States proceeded apace — with the unfortunate result that very many important monuments have been erected, important from their subject, from their size, from their cost, from their manifest intention of being worthy of the object or the person they commemorated, but of which the artistic value is very slight. The public auspices under which many of these memorials were erected were frequently inadequate from the artistic standpoint, those having them in charge being too often content with spending so many thousands of dollars, and being satisfied with the expenditure without scrutinising too closely the artistic value of the result. It is more unfortunate, perhaps, that there should have been a general indifference on the part of the public to real artistic values, too much satisfaction with the mere expenditure.

General Grant died on July 23, 1885, and within five days a movement was inaugurated in New York City for the erection of a suitable tomb and memorial within the city limits, Grant having expressed a wish to be buried there. The metropolis of America is notoriously backward in undertaking great public enterprises; rival cities claimed that an amount necessary to defray the cost of the most sumptuous modern monument could have been raised in any of them in as many days as it required years for the city of New York to obtain the relatively small amount finally fixed upon. A committee appointed by the Mayor of New York secured 150,000 dols. after much exertion, and then the movement languished until it bid fair to become a public scandal and disgrace. Several years passed; then renewed efforts were made, and finally, by dint of great efforts, about 600,000 dols. were obtained, in which sum the accrued interest formed a not inconsiderable item. The story of the securing of these funds is not a creditable one to America or to the great city in which the tomb has been built. It was deemed inadvisable to ask for contributions from the State or the national governments, and it is doubtful if such aid could have been had, so general was the feeling that New York City should meet the cost. So from 1885 until the spring of the present year, the body of America's greatest general, one of the world's greatest commanders, lay in a temporary vault of brick, until a more suitable monument should be built beside it.

A public competition was instituted for a design, in which many of the leading architects of America took part, and for which many sumptuous and splendid proposals were made. This was held before the great difficulty in securing funds had become generally recognised, and it was hoped that money would be obtained to produce a memorial at once fitting to the hero and expressive of the best in American art. The design by Mr. Duncan, which was finally selected for erection, was by no means one of the most elaborate; but the later history of the Grant Memorial Association, as the body that made itself responsible for the tomb was known, has proved that, on grounds of expediency at least, the choice was a wise one. Unquestionably, a more elaborate monument could have been erected; but without that liberal State aid which no country in the world save France knows how to advance, it is difficult to see how a more imposing one could have been built.

The site chosen for the tomb is an ideal one, situated on the heights of Riverside Park, which runs along the Hudson River in the upper part of New York, and commands a superb view of the great river and the city. More, indeed, can be seen; for on one side the view is bounded by the Palisades on the New Jersey shore of the river, and on the other it is possible, from the upper part of the Tomb, to see far across the city, clear to the East River on the other side, and out across Brooklyn into Long Island. Perhaps no other great Tomb in the world enjoys a situation that so closely approaches the sublime as this, and had not the architect been limited by the inevitable and unavoidable question of cost, a truly splendid memorial might have been erected here. It is not, however, what might have been done that calls for comment, but what has been done.

A building that is a tomb and nothing else, that is connected with no other structure or group of structures, that does not contain even so much as a chapel or a memorial chamber, that is nothing, in fact, save a housing for a sarcophagus, at once challenges comparison with the other great tombs of the world. What the Mausoleum of Halicarnassus was like we can only conjecture, but in the Mausoleum of Hadrian, which still survives *en bloc* in the Castle of St. Angelo, we have a type of a great Roman tomb that is, perhaps, the most expressive form of this sort of structure we know. The Taj Mahal is a building quite apart from western ideas, and could offer no suggestions to the western architect. The tomb of Napoleon in the Invalides in Paris is a more useful guide to modern tomb builders, and possesses, in a very high degree, the elements of sublimity and majesty in building and of suitableness as a military memorial. No modern architect, designing in the Classic or Renaissance styles, could well free himself from the influence of the tomb of the great French Emperor; and, as a matter of fact, Mr. Duncan has drawn upon both the Tomb of Hadrian and the Tomb of Napoleon for his inspiration.

Externally the building* is simple and severe, a form of treatment not inappropriate to the simple and unaffected character of the General it commemorates. It is built of white granite, and consists of three parts—a lower rectangular portion, almost cubical in form, with a frontage on each face of 90 ft., on which rests a cylinder that, in turn, is

* See lithograph illustrations.

surmounted by a cone. The entrance is emphasised by a projecting portico of six Doric columns, carrying an entablature which is continued around the four sides of the building, though the three remaining sides have simply four Doric columns set within the line of the building, marking off the space occupied by square windows in the upper part of the wall. The entrance portico is a stately composition, flanked by solid masses of the main wall that admirably support it on either end; but the pediment, which is an integral part of the Doric portico, is absent. Instead, there is a deep, plain attic-like stretch of wall carried above the cornice, and surmounted by a cornice of its own. It is not a happy division, for the portico cornice, when continued on the main wall, becomes a mere ornament, carried around the building apparently to get rid of it, and that at a point not quite high enough to properly proportion the square attic, which, indeed, is not an attic at all, but the main wall of the building, carried up behind the lower cornice to its own crowning at the top. Above is a very flat pediment, a bit of wall with a decorated niche in the centre, slightly lower at each end than in the middle. On the other sides, this wall or attic is straight, but on the main front the slight rise in the centre forms the only device whereby the lower part of the building leads to the upper members.

Had the tomb of Grant been built by the Romans, we may readily imagine it might, in its bare outlines, have taken some such form as this. That is to say, its architectural members might have been a cube surmounted by a cylinder and capped by a cone. But the Romans would never have erected a monument so bare of sculpture as the tomb of Grant, though it is indeed just to its architect to point out that his original design called for the employment of a not inconsiderable quantity of sculpture, which it has been impossible to put in place with the funds in hand. But as the building now stands, it is not only bare, but the different parts are not sufficiently correlated with each other. The cylinder is simply placed on the top of the cube, and the cone, again, placed on the top of the cylinder. No one portion leads to another, and the differences in shape are too baldly expressed. In time, doubtless, some of this bareness of effect will be removed by an elaborate decoration of sculpture, a decoration perhaps more elaborate than that now thought of; but, meanwhile, the building suffers from being just what it is—three forms placed one above the other. The cylinder is surrounded with a colonnade of twenty-four attenuated Ionic columns, unfluted, resting on a rather high stylobate, and carrying a cornice, which, like the other cornices of the building, is plain and undecorated. It does not reach to the top of the cylinder, which reappears above its cornice as a base for the cone, built in steps, and surmounted with a small circular platform, unquestionably destined for a statue or a group of sculpture.

The difficulties that attended the architect are, therefore, very obvious. As a building the tomb is large enough and important enough to serve its purpose satisfactorily; but it fails of complete success as a work of art because its designer was unable to avail himself of the lavish decoration the Romans, on whose tombs he has modelled his monument, would have employed as a matter of course, and which would have formed an integral part of the work. Further, the proportions are not altogether happy; the masterly spirit of the Romans, their skill, their resource, are absent. It was perhaps not wise to have followed Roman models so closely in the architecture without being absolutely able to follow them in the enrichment. But the original design provided for a good deal that is not here. Four equestrian statues were to stand on low pedestals that have been built above the four central columns of the portico; an equestrian statue of Grant was to stand on the open space before the building; the cone was to be surmounted with a statue, and doubtless the upper corners of the cube or base would have been decorated in a similar fashion. All this may yet be done, and when it is, the tomb of Grant will be more worthy to rank among the great monuments of modern times than it is to-day.

Rome furnished the model for the exterior of the monument; Paris supplied the *motif* for the interior. Few tombs are so impressive as that of Napoleon, with the great opening into the crypt below and the high dome above. It is a splendid conception, and in the Invalides it has been splendidly carried out. Difficult as it must be for a modern designer to forget that sumptuous design, it is also difficult to follow it, for comparisons are inevitable. The interior of the tomb of Grant cannot compare with the interior of the tomb of the Invalides. At the Invalides there is an abundance of space, an abundance of material, and direct connexion with a great church that is in itself of value to the interior of the dome. In the tomb of Grant we have the dome alone; we have the form, the idea, but not the size, nor even the splendour of material. The interior is not, indeed, wanting in lavishness. The walls are encased in marble to the main cornice, which, with the vaults of the four recesses that make the Greek cross of the interior, and the upper walls of the dome and the dome itself, are of plaster. Time will do much to better this interior; at present the differences in material are too obviously apparent for a complete artistic success.

As at Paris, there is a great circular opening in the centre of the floor directly beneath the dome, and there, bending over the solid plain balustrade, the pilgrim and the curiosity-seeker can see the tomb of the hero. The tomb chamber itself is plain, a series of solid unornamented marble piers forming a passage around it. In the middle is the sarcophagus; not, indeed, in the centre, for when the body of Grant was given to the city of New York for interment, his wife stipulated that she should have burial beside him. At her death there will, therefore, be two sarcophagi, side by side, resting on a common base; an arrangement with which the architect has had nothing to do, of course, but which destroys somewhat the individuality of the memorial, and robs it of some of the sublimity that surrounds the solitary tomb of Napoleon. The sarcophagus is of a dark brownish red porphyry, obtained in the State of Wisconsin, resting on a pedestal of polished bluish-grey Quincy (Mass.) granite. It bears the simple inscription, "Ulysses S. Grant." The lower chamber is reached by a flight of steps, filling one of the arms of the Greek cross, though it is not generally accessible to the public.

The interior of the building, as has been stated, is planned as a Greek cross, that form being determined by the employment of a dome as the central feature. The spaces within the piers form four small chambers, each roofed with a dome, which, in time, may be put to memorial uses; at present they are empty. The arms of the cross are covered with coffered vaults in plaster, and the drum of the dome is treated with pilasters, with rectangular windows between them, each containing a pair of Ionic columns. A passage carried round the cylinder without the windows is lighted by plain windows cut in the stylobate of the exterior colonnade, and which, while visible from without, are devoid of architectural features. The dome is coffered and is hemispherical in form, and is closed at the top by a plain flat circular surface, somewhat too large for the position it fills. The dome, like the vaults of the arms of the cross, is of plaster, carried on steel supports.

The upper parts of the interior are sufficiently satisfactory from a decorative standpoint, though the constructional purist could wish the whole covering had been built of the solid material that forms the base and the side walls; could wish, indeed, that it were really a solid tomb, such as the Romans would have made had they had the building of it. But modern methods do not always permit the architect to carry out his designs in the actual material he would wish for; nor, in fact, as the design necessitates. Material apart, however, the upper parts are sufficiently in keeping with the stately architecture of the whole.

The tomb of Grant, whatever its form, wherever its location, must always be a spot of the utmost interest. That it is not wholly an architectural success is a misfortune that should not be completely visited upon its designer. The difficulties he had to contend with in the matter of cost were too great, for a monument planned on the large scale the tomb has been planned on, to be entirely successful. But it is a genuine effort to produce a work worthy of the hero it commemorates and the great city in which it is built. Certainly it is entitled to rank among the most notable monuments in America, and it is a building that is not likely to suffer in comparison with any other similar monument raised by American patriotism and admiration.

THE ANCIENT ARCHITECTURE OF IRELAND:

CONSIDERED ESPECIALLY IN RELATION TO PRE-CONQUEST BUILDINGS IN ENGLAND.

By Professor Baldwin Brown.

II.

THE series of successive types which illustrate the development of Irish architecture begins with structures which are certainly of pagan origin, but differ through their historical character from the dolmens and other rude stone monuments of wholly uncertain date. Literary references enable us to recognise the tumuli of Dowth and Newgrange, by the Boyne, as burial places of ancient Irish kings, while the incised markings on the stones of which they are composed have led students of comparative ornament to suggest dates for them in the

first millennium B.C.* Access to the interiors of these immense mounds is gained by passages lined and roofed with huge upright and horizontal slabs of unhewn stone, and these end in chambers, circular in plan, and in section resembling a bee-hive, wholly constructed of unworked stones, forming a vault by the system known as encorbelment. Chambers or cells of precisely similar character occur as independent buildings in the open in many districts of Ireland, and indeed of the western seaboard of Britain generally. The doorways of these are often constructed like the passages in the tumuli, with jambs of huge upright stones; at other times there is no special treatment for the jambs, and the doorways are just breaks in the walling; but in all cases the lintel is formed of a horizontal stone, with perhaps another above it to relieve it from pressure, while for the purpose of reducing the obligatory length for these stones, the sides of the doorway converge, so that the aperture is smaller above than below. Structures of this kind are found sometimes in formally planned groups, and these may once have been covered over by tumuli (such as those by the Boyne already referred to), and have had a sepulchral character. Others are found scattered over the areas within the great stone forts that are such remarkable features of the west of Ireland and of Wales. These forts, of which Dun Ængus, on Aranmore, in Galway Bay, is the most imposing, are certainly pagan in origin. They are defended by successive enceintes of dry stone walls of great height and thickness; their doors are of the kind just described, and bee-hive cells are found within the mass of the walls, as well as in the open areas, where they seem certainly to have been used as habitations. Fig. 7 is a distant view of Dun

Fig. 7.—Dun Ængus on the greater island of Aran.

Ængus, on the edge of a wall of rock descending some 300 ft. sheer into the Atlantic. Fig. 8 shows the interior, with doorway, of one of the half-ruined bee-hive cells within an enclosure at Fahan, county Kerry. The stones are field-stones put together without mortar, and the roof was originally completed by the process of overlapping in horizontal layers.

It happened more than once that the interior of a stone fort or "cashel" of this kind was taken possession of by a Christian community. Of this we have literary as well as monumental evidence. A well-known example is Innismurray, off the coast of Sligo, where an enceinte, certainly of a non-Christian origin, encloses Christian buildings of an early type. Among these are some bee-hive cells exactly like those already referred to, but these might con-

Fig. 8.—Doorway of Bee-hive Cell from interior, Fahan, co. Kerry. Pagan period. Height 5 ft.

ceivably be survivals from a pre-Christian time when the place was a secular fort. In Skellig Michael, on the other hand, the structures are, one and all, certainly Christian. The massive wall of enclosure forms a Christian "cashel" and is constructed just like the pagan stone forts (see fig. 5, p. 216 *ante*), while some of the bee-hive cells are stamped as Christian by a cross formed by white quartz stones over the doorway. These, however, show a divergence from the simpler form hitherto discussed in that, though circular externally, they are rectangular, with sharp or rounded corners, in the interior. At Skellig Michael, also, we get another type of building, of which the plan is distinctively Christian, though the technique is the same as that of the bee-hive cells. This is the rectangular oratory, used for prayer and service, and not for residence, represented here by two examples, of one of which measured drawings appeared in the *Builder* of February 20, 1892. It stands just above a projecting corner of the cashel wall, and its general form can be seen in fig. 9. It measures only about 8 ft. in in-

Fig. 9.—Oratory on Skellig Michael.

ternal length, and is entirely constructed of slab-like pieces of slate, untouched by the tool. These are placed from the ground upwards in the system of encorbelment, so that the sides converge from the first, and the whole looks like a truncated pyramid with convex sides on a rectangular base. The door has a flat lintel and sloping jambs built like the rest of the walling.

Oratories of this type are generally held to give us the earliest existing form of the Christian church in its Celtic shape. They are commonly more or less oriented and have the door on the west, with a small window to the east. The most perfect example, though it is not one of the earliest of its class, is the famous oratory of Gallerus on the Dingle promontory of County Kerry (fig. 10)

Fig. 10.—Oratory of Gallerus, co. Kerry.

one of the most interesting little buildings in Europe. Gallerus—the meaning of the name is not known—is constructed with extreme care and skill, and has preserved its walls and stone roof intact for, perhaps, 1,200 years. The form is the same as that of the oratory on the Skellig (fig. 9); but the stones in the interior have been, to some extent, smoothed by the hammer, and they lie so closely together that the surfaces of contact have probably been treated in the same way. Fig. 11

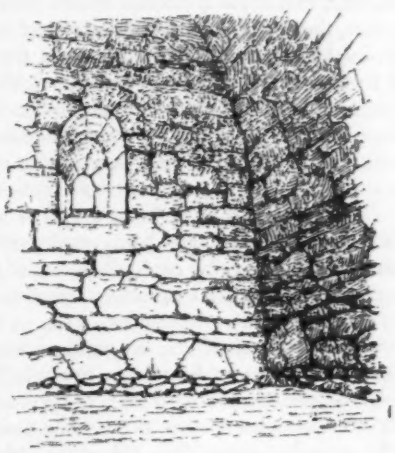

Fig. 11.—Interior of the Oratory of Gallerus co. Kerry.

gives the aspect of this interior masonry in the south-east corner. No cement of any sort has been used, and it is easy to see daylight through the crevices between the stones of the walling. These crevices do not, however, let in moisture, for the stones are bedded with a slight downward slope towards the exterior, so as to throw off the rain. This slope has also a constructional value as counteracting the tendency of the stones as they overlap on the interior to topple inwards. The exact statics of this method of construction might be worth investigating.

It is commonly spoken of in architectural books as a "false" or "faulty" method, but it is employed in these small oratories with perfect frankness and with perfect success, and it is difficult to see where the faultiness comes in. There is hardly a trace of deformation in the curves of the sides of the oratory of Gallerus, and it has never needed restoration. The utmost that seems to have been done in this way is the replacing of the triangular stones forming the external ridge of the roof. Clearly, if proper conditions are observed, the stone vaul in encorbelment is a perfectly legitimate constructive device,

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* An illustration of this ornament was given in fig. 6 of the preceding paper of this series, p. 217.

and it has, moreover, the advantage that it supports itself without the need of external buttresses or excessive thickness of lateral walls. These proper conditions are present when the outward and downward slope of the stones is not so great as to endanger their slipping on their beds, and when the section of the vault is sufficiently pointed to preclude a dangerous overhanging of one course over the one below. This last requisite would militate against the construction of vaults of this kind above a certain moderate span; but further discussion of the process may be left till we come to the modifications of it seen in later Irish architecture.

In these early forms of the Celtic oratory we have to notice, first, the rectangular plan in which they differ from the "bee-hive" form characteristic of the interiors of the pagan period, and, next, their interesting methods of construction.

For clearness' sake it will be well to treat these two points separately. The class of rectangular oratories is a numerous one, and embraces examples from many periods and in more than one system of construction. These constructive differences will be considered later on, and, confining our attention for the moment to plans, we may pass from the simple one-celled oratory to the next type, the church with nave and chancel. Here again we have to deal with a large class of buildings represented in most parts of Ireland, that show a distinct architectural advance, though it does not follow that in individual cases single-celled oratories may not be later than churches with chancels. There are instances in which a single-celled oratory has been enlarged by the subsequent addition of a chancel, but in the majority of cases nave and chancel are contemporaneous, and we may take this to be normal. The buildings in question are plain structures, with a nave generally entered through a west door, and lighted by primitive window-slits with a square or triangular head, or a round one cut out of one or perhaps two stones. An archway leads into the small, square-headed chancel, that has usually an east window and one other of the same kind as those in the nave. The old stone altar very commonly remains, and this is a feature in which Irish country churches have an advantage over our own. Ground plans of two characteristic examples are given in fig. 12,

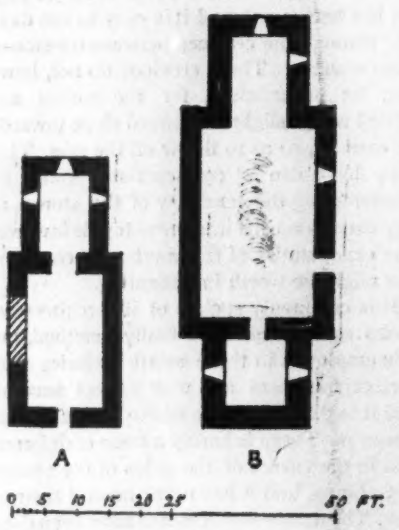


Fig. 12.—*Ground Plans. A, Killiney. B, "Trinity" Church, Glendalough*

Killiney old church, near Dublin, and the so-called "Trinity" church at Glendalough, county Wicklow. Both are roofless and in ruins. One of the chief features of interest in these buildings, for the purpose of these papers, is their remarkable likeness to typical early Saxon churches in our own country, of which the most perfect is Escomb in Durham. Leaving this point for future treatment, we may ask the question here: Were these plans of purely native growth, or to what extent can continental influence be traced in them?

This question cannot be discussed without some reference to literary sources of information. In the case of Irish antiquities, these flow pretty freely. For St. Patrick and his times we have contemporary documents, supplemented by the matter contained in the Book of Armagh of the eighth century; and if we employ nothing of later date than the latter, or than the "Ecclesiastical History" of Bede, we find ourselves in possession of a goodly number of literary notices with which the monuments may be compared and illustrated. Christianity, it must be borne in mind, was itself a foreign importation, and with Christianity we should expect to find introduced the arrangements and apparatus of service. The Eucharistic table was one of these, and this had a simple form. The complications which arose on the Continent from the accidental association of the altar with the tomb of a saint do not appear to have troubled the Irish. Hence the *confessio* and the crypt play no part in the development of their church plans, and they seem to have kept the altar in early times to its original significance of the table of the *agapé*. The proper placing of the table was, however, from the first a matter of importance. This is clear from the attention paid to orientation, and it was this that in all probability determined the general plan of the oratory. We have seen that the bee-hive cell is the earliest known type of covered interior in Ireland. An interior round in plan cannot be oriented, and does not offer any distinct position for such a feature as the altar, and the difficulty arising from this occurred on a much larger scale in the case of the round or polygonal domed churches of the Continent, such as S. Vitale at Ravenna, S. Lorenzo at Milan, or S. Stefano at Rome. In these no place could be made for the altar without some modification of the architectural plan, and it was the great merit of the design of Sta. Sophia at Constantinople that it gave the altar its place of distinction without any sacrifice of consistency in the general architectural treatment essentially dependent on the dome. The substitution of the rectangular for the traditional round form of interior among the early Irish Christians may have been due to the cause here indicated, and it is interesting to find this change hinted at in the records of St. Patrick's life and work. In one often-quoted passage we have given the dimensions of certain ecclesiastical structures which this indefatigable missionary used to have built, and as only one measurement is in each case given, it has been suggested that the buildings were round, so that the diameter gave the size. If this does not seem quite convincing, we have the further significant fact that we are told several times,* of *ecclesiæ quadratæ*, and this adjective would hardly have been used had not the round form been at the time familiar. No existing oratories are likely to go back to the time of St. Patrick, but we may see some sign of this transition in the shape of the cells on Skellig Michael, which, as is seen on the plan given in the *Builder* of February 20, 1892, show a sort of compromise between the round and the rectangular form. That they are generally to be regarded not as oratories but as dwellings, seems clear from the openings in the roof for the exit of smoke. (In one the outlet was a round hole about 5 in. in diameter in a flat slab about 2 ft. square and 2 in. thick), They exhibit, however, through the rectangular form of their interiors, an intermediate stage in the development of the oratory. between the bee-hive cell used as a church and the regular four-sided structure. It is quite possible that the largest of these cells, which is oblong in plan and has a window as well as a door, may really have been a church, in which case the cross marked with white quartz stones over its portal would have special significance. This would give us an existing example of a type earlier than the *ecclesia quadrata*.

From the rectangular oratory, where the altar finds its natural place at the small end opposite the door, a logical process of development, conditioned by the growing mysticism of the times, might easily lead to the construction of a special house for the sacred table and its ministers. In this way we might arrive at the nave-and-chancel plan without there being any question of external influence. The relation, however, between the forms of Irish churches and those prevailing on the Continent, opens up an interesting problem, the discussion of which must be reserved for the next paper.

* The passages bearing on architecture in the documents relating to St. Patrick are referred to on p. clv. f. of the introduction to Mr. Whitley Stokes' "Tripartite Life of St. Patrick," in the Rolls Series.

NOTES.

An International Congress for London.

AT a special meeting held after the conclusion of the Brussels Architectural Congress, it was decided that a Congress of Architects should be held at Paris in 1900 in connexion with the great Exhibition of that year, and the *membres d'honneur* of the recent gathering were requested to assist the Paris committee in arranging for a representative participation of their respective countries. The proposed Congress was, we might almost say, expected as a matter of course, for no city has ever indulged in so many gatherings of this description on the occasion of its exhibitions as Paris. But we may add that at Brussels, at the Berlin national gathering of last year, at Buda-Pesth, and at Chicago, where architects have met in any considerable numbers, the wish has been very strongly expressed that one of the next professional meetings of the kind might take place in London. It might be worth considering if our own capital should not be the centre of an international congress prior to the Paris conference, for it would mean waiting five years at least if such a gathering were postponed until after 1900. Many foreign architects would greatly appreciate seeing English work and attending a conference dealing primarily with our recent developments in design, construction, and professional practice. Continental architects of all nationalities are well in touch with one another, but there has not been the same

exchange of ideas and experience between England and the Continent. There is a very strong feeling among the architects of the Continent that London would be the right place for an Architectural Congress. Such a conference, however, should be managed on broad lines by a joint committee representing the Royal Institute of British Architects, the Architectural Association, the allied Societies, and the "unattached" members of the profession. To be successful, the English profession as a whole would have to do the honours of the country, and personal or society differences would have to be disregarded. If that could be brought about, it would in itself be one of the best results of the conference.

St. Alban's Abbey.

WHATEVER may be the opinion as to the artistic merits and demerits of the work which Lord Grimthorpe has carried out at St. Alban's Abbey, the world has generally, we believe, been inclined to admit his skill as a builder and constructor at his own valuation, high, indeed, as this has been. Time, and, in the history of a cathedral church, a very short time, has found out the incompetence of the amateur, though wealthy, builder and restorer of St. Alban's Abbey. The roof tiling has been so ineffective in keeping out the weather that it is now in course of being completely stripped and replaced with new, laid in a more sensible manner. The mischief seems to have been caused by the bedding of the tiling completely in mortar, a method which has afforded opportunities for the frost to play havoc with the weather-tight qualities of the roofing. Nor is it only the roof tiling which requires and which is receiving reparation. Much of the parapet coping has from faulty selection of the stone, and improper amateur construction, come to grief, and has had to be extensively repaired. These works are now being carried out on the north transept and north aisle. The roof of the south aisle has been put in order, but on looking round the building, after our inspection of the works actually in progress, we cannot help coming to the conclusion that even these, extensive as they are, will not be the end of the rebuilding that will be necessary before very long to the restoration work of the great amateur builder, "Edmundus Recens Aedificator." We notice that many of the bases to the shafts of the west portal are fractured from improper construction, and that window-sills, even in some of the latest work of Lord Grimthorpe, have been cracked through. These, and other indications, force us to the conclusion that Lord Grimthorpe has left undone one most important duty, viz., the endowment of a very substantial sustentation fund for the repair of his own work.

Mont St. Michel.

THE works which the Commission des Monuments Historiques have authorised on Mont St. Michel under the superintendence of the architect, M. Petitgrand, are being pushed forward with all rapidity compatible with the very restricted resources of the Fine Art Treasury. These extremely important works are already well advanced, and some months ago there was completed the elegant flèche which rises above the church, and which supports at a height of 40 mètres, the gilded statue of St. Michel, the work of the sculptor, Fremiet, which itself measures 4 mètres in height. In our opinion, this addition is somewhat startling, as on arriving by way of the embankment from Pontorson, the eye has become accustomed to the classic silhouette of this graceful monument. But it appears that it is no more than a simple restoration, and that formerly a similar flèche crowned the Mont St. Michel. Let us hope that a too literal restoration may not hereafter be found to have resulted in altering the harmonious character of the ensemble, and that the landmark may be preserved as it exists, without any modification that savours of vandalism.

Excavations on the Acropolis, Athens.

THE long looked for report and plan of the excavations on the north side of the Acropolis has just appeared in the Athenian *Ephemeris Archaiologike* (1897, 1 and 2). We have frequently drawn attention to the progress of the work, and are now able to refer our readers to the full official account by the Ephor of Antiquities, Mr. Kabbadias. The report is unfortunately in modern Greek, but the plans, sections, &c., show the main facts apart from the text; they are accompanied by four photographic views. For those who read German there is a *résumé* of the report in the *Berliner Philologische Wochenschift*, September 11. The Annual of the British School at Athens, which under the new directorship has shown such marked development, would do good service if it would promptly publish an English version of these important reports of the work of foreign schools. We must be content here to note that the excavations have thrown some light on the vexed topography of two classical plays, the Ion of Euripides and the Lysistrata of Aristophanes. M. Kabbadias thinks that before the Persian War the west of the two grottoes laid bare was dedicated exclusively to Apollo, and that Euripides committed an anachronism in calling it "the seats of Pan." He declines, however, to say whether Dr. Dörpfeld's view that the cave was actually called the Pythian is correct.

Pediment Sculptures of "Old Athene Temple."

IN spite of these complications, the work of setting in order the great mass of sculptured fragments discovered in the Acropolis goes on apace. In the "Mittheilungen" (xxii., 1, 2) an important paper has just appeared, publishing the fragments that have been identified as belonging to the pediment of the "Old Athene Temple." The work has been one of extreme difficulty, owing to the shattered condition of the fragments. As long ago as 1886, Dr. Studinczka initiated it by detecting a torso of Athene which he conjectured formed part of a Gigantomachia decorating the pediment of the old temple. Since then the work of restoration has gone on continuously, with results that can be judged by reference to plates iii., iv., and v. of the Mittheilungen. Anything like a restoration of the composition as a whole is, unfortunately, out of the question; but the investigators have restored to us a figure of Athene, complete, save the arms, and three torsos of fallen giants. Considering that the date of these figures is certain—so far, at least, as the terminus *ante quem*, it would be hard to over-estimate their value as historical documents. Dr. Schrader's paper is to be followed shortly by a paper by Herr Wiegand on the architectural remains of the old temple, and its probable restoration.

The Old Deer Park, Richmond.

WE read that the Town Council have nearly completed negotiations with the Chief Commissioner of Works for purchasing about ninety acres of the Old Deer Park as a public recreation ground. The Old Park, first cited in a survey of the manor, 21st Edward I., includes the grounds of the Sheen Palace, reinstated by Henry V. and rebuilt by Henry VII., whose successor bestowed it in dower upon Anne of Cleves, after her divorce. In a survey of 1649, its extent is given as 349 acres—these, with the manor, were settled on Queen Henrietta Maria in 1627. In 1707 Queen Anne demised the lodge for a term of ninety-nine years to James, Duke of Ormonde, who rebuilt the house which on his attainder was bought, under an Act of 1721 in that behalf, by his brother the Earl of Arran, who sold it to the Prince of Wales (George II). The lodge was then assigned to Queen Caroline, who had a dairy and menagerie in the Park, and employed Rysbrack to make busts of English kings and queens for the Merlin's Cave, and Stephen Duck as her librarian. The gardens were first planted by Bridgman, and then altered by "Capability" Brown. The lodge, whose site is marked in Rocque's plan of 1748 and his survey of 1762, was pulled down *circa* 1770; close by was erected, 1768-9, after Sir William Chambers's designs, the Observatory, latterly used by the British Association for the Advancement of Science. Chambers laid out the old Kew Palace Gardens, and designed various buildings—including the Pagoda, Mosque, Temple of Æolus, Temple of Victory (Minden), and the "Ruins"—which he has described and illustrated.* In 1785 an Act passed enabling the King to close Love-lane and so unite Kew Gardens and the Old Deer Park into one. Sir Jeffry Wyatville built the Doric Temple, or "Pantheon," for William IV. The Queen presented the collection of mechanical models and philosophical instruments formed by George III. at the Observatory to King's College, London.

Sanitary State of Horsforth.

DR. R. BRUCE LOW'S report to the Local Government Board on the sanitary circumstances of the Horsforth Urban District, has special reference to the public water supply there, and its connexion with a recent outbreak of enteric fever. The outbreak appears to have been due to contaminated drinking water, supplied by the Horsforth Waterworks Company. The water is filtered before it is delivered to the district. There are at present four filter-beds, each measuring 31 ft. 9 in. by 36 ft. 6 in. The filtering material consist of 2 ft. of sand; below this is a layer of 8 in. of small river pebbles, and below this again is a layer of 1 ft. of coarser pebbles. Three filters are worked at a time; the fourth meanwhile being scraped and rested. The water, after filtration, is conveyed to an adjoining "clean-water tank," which measures 90 ft. 6 in. by 53 ft. by 8 ft. 10 in., and has a capacity of 300,000 gals. Besides the high level and lowel level reservoirs, the company possess a third reservoir

* See his designs of Chinese buildings, &c., fo. 1757, and plans, elevations, sections, and perspective views of the buildings at Kew, fo. 1763.

to supply compensation water to mill-owners lower down the valley. This reservoir receives storm water, the overflows from the two storage reservoirs, and as well the land drainage of an area below the gathering ground of the company. At the waterworks there is a valve by which the unfiltered water from the compensation reservoir can be turned into the mains, and so delivered to the town instead of, or in addition to, the filtered water. A caretaker resides at the waterworks. His duties are to attend to the valves, to keep the filter-beds in working order, to wash the sand, and to attend to the fences. He is little better than an unskilled labourer. When the occurrence of fever cases drew attention to the water supply, it was found the valve in question was open, with the result that the district was being supplied in large part with the unfiltered water from the compensation reservoir. It has also been alleged that the caretaker, to save himself the trouble of scraping the filter-beds and washing the sand, had kept this valve open for indefinite periods, extending over several weeks at a time; but this the man denied. Dr. Low's account of the gathering ground affords evidence that excremental pollution of the water passing into the reservoirs has been highly probable, and the fact that unfiltered water has been from time to time supplied to the town, and more especially that it was supplied for some weeks preceding the enteric fever outbreak, is altogether consistent with the fever poison having been water-borne. Among some of the points which required immediate attention, Dr. Low indicated the following:—

The necessity for dealing with the sewage of the farmhouses so as to prevent its passage into the streamlets.

The need for additional filter-beds, so as to ensure the proper cleansing and resting of the beds at appropriate intervals, with renewal of filtering material when necessary.

The necessity for the provision of a duplicate "clean water tank," so that one such tank might be kept in use when the other was being cleaned out.

The necessity for taking steps to prevent, on all occasions and under all circumstances, the passage of unfiltered water into the town mains.

Since then some improvements have been effected, and it is stated in the report that, should the company carry out their projects in full, much will have been effected to prevent a recurrence of the serious dangers to the water supply.

The Engineering Strike.

THERE appears to be no doubt that the engineering strike is likely to be one of the most momentous conflicts between capital and labour of the present time. The attempts of the Board of Trade to bring the opposing parties to a conference appear from the first to have been wholly unacceptable. It is not surprising; so far as regards the question of an eight hours day, the issue is so simple and clear that a third party cannot be of the least use, for it is difficult to see what middle course there can be to which an impartial person could reconcile the combatants. On each side, too, there are combination and ample funds, and the victory or defeat which one or other must gain or suffer must have consequences beyond the immediate parties. It will probably affect the length of the hours of labour all over England. Taking, then, all these circumstances into consideration, it is difficult, as we have said, to see how a long period of conflict can be avoided.

Liquid Air.

A SUGGESTION which originated in America that it would be economical to use liquid air as an insulator for electric transformers has been gravely discussed by some of the daily papers. Professor Fleming, writing recently to the *Electrician*, shows the absurdity of the proposal. The energy wasted in a thirty horse-power transformer costs generally from 1s. to 1s. 6d. a day to the producer. To get rid of this waste at least thirty-six gallons of liquid air daily would have to be employed, and, considering the present price of liquid air, the whole proposal is seen to be chimerical. If we could get liquid air at one-tenth of a penny per gallon, then possibly it might be worth considering. Professor Fleming points out that along all conductors immersed in liquid air heat travels very rapidly, and to prevent all the air boiling away the greatest precautions are necessary. Ordinary commercial vacua are very different from those Professor Dewar produces in his vacuum vessels by means of his mercury process. Whilst the use of liquid air in the manner suggested is quite unpractical, yet the Linde and Hampson process has so reduced the cost of its production that it will probably soon come into general laboratory use. In the papers which Professors Fleming and Dewar communicated to the Royal Society last June, a number of interesting researches on the electric properties of certain liquid solutions at very low temperatures are described. The results are most puzzling and extraordinary. For example, the resistance of a solution of copper sulphate at $-330°$ Fahr. was a hundred thousand times greater than its resistance at $-112°$ Fahr.

Dover Pier and Victoria Station.

A CORRESPONDENT in the *Times* has called attention to the various inconveniences suffered by travellers from the Continent who cross from Calais to Dover, and so on to London, in connexion with the examination of the baggage. No doubt the arrangements are faulty, but very largely they arise from the inadequacy of Dover Pier and Victoria Station for the increased traffic. At Dover narrow gangways land passengers on narrow steps, whereas wide gangways should place them on an easy and broad flight of steps. The platform is far too narrow, and the refreshment-room, where wearied passengers seek to obtain their cup of tea, is a little structure barely sufficient to hold two attendants. This statement is sufficient to condemn the present state of Dover Pier as the chief landing-place from the Continent, and passengers must continue to suffer inconvenience till Dover pier itself is improved. Again, all Londoners are familiar with the wretched shed at Victoria Station, which does duty for a Customs house, into which passengers are crowded, mixed up with porters and luggage. But here again the true remedy is to erect a proper Customs house. But Victoria Station is itself, as a whole, in many respects quite inadequate for its purpose as an important Continental terminus. It illustrates a fact to which we are constantly calling attention, namely, that several of the London terminal stations are now quite too small for the traffic.

A Contractor's Responsibility.

ACCORDING to the *Deutsch Bauzeitung*, an interesting legal case has been decided under the German Compensation Act of 1887, by which a contractor was held responsible for an injury sustained by a "blackleg" who was working for him during a strike in the building trades, and had been attacked by the strikers whilst within the boundaries of the building operations. It was held under the Compensation Act that it was a business of the contractor to protect "blacklegs" from the well-known dangers of an attack by exasperated strikers, and if the contractor failed to take the necessary precautions, he must do so at his own risk, as strikes have practically become one of the "ordinary dangers" of the building trade. No doubt this opinion is quite correct in law, and the reasoning may be logical, but surely such a state of affairs ought to be remedied.

The Paris Exposition of 1900.

THE engineer, M. Sauterau, has laid before M. Picard, Commissioner General of the Exposition of 1900, a scheme for the representation at Paris of the church at Vassili-Blagennoi, erected at Moscow in 1554, and which, with its eleven towers of varied forms and colours, is one of the most curious buildings in Russia. If the idea is adopted this monument could serve during the Exposition as a museum or a hall for fêtes and musical performances.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

NEW CHURCH OF THE HOLY TRINITY, ROEHAMPTON.

A SOMEWHAT small party of members of the Architectural Association went on Saturday afternoon last to see the new Church of the Holy Trinity, Roehampton, which is now rapidly approaching completion from the designs of Mr. G. H. Fellowes-Prynne. After a pleasant walk from Putney Station, the party were met on the site by Mr. Prynne, and conducted over the building. The working and detail drawings were laid out for the inspection of the visitors, and the architect explained some of the peculiarities of the site, and the influence these had upon the design. The greatest drawback is the limited dimension in length, the church being closely hemmed in on the east and west by hard and fast lines. This difficulty of the site, however, is by no means apparent internally, owing to the skilful proportioning of the nave arcade, and the extreme care which has been taken in the design of the detail to give scale to the building.

As one has learned to expect from Mr. Prynne's previous examples of church building, the plan is remarkable for its picturesqueness of disposition, and the interest thereby given to both exterior and interior, without prejudice to the practicability of the church; indeed, one ought rather to say with considerable advantage to the actual use of the building.

The church consists of nave, chancel, north and south aisles, north transept, morning chapel on north side of the chancel, organ chamber and vestry on the south side; whilst breadth is given to the western façade by a tower and porch on the north, and projecting semi-circular baptistry on the south. Mr. Prynne is to be congratulated upon the fact that his clients are enabling him to practically complete the church before the consecration. The tower and spire are going on, and the stained glass in the east window is in position—a beautiful piece of work by Kemp, who is also responsible for the small windows in the baptistry.

We earnestly hope that those who have charge of this church hereafter will take care that no other artist or tradesman is allowed to insert any other stained glass in the church as long as it is possible to obtain any from Mr. Kemp's hands. Nothing is more disastrous to the general effect of a church than to have the windows filled with stained glass by different workmen.

It is far better that even a second-rate artist should be entrusted with the whole of the work, than that work from a number of first-rate men should be placed cheek by jowl. The chancel screen, which is of the type with which Mr. Prynne has made us familiar, is in position, the reredos designed in all its detail by the architect is being built up in its place, the work being in the hands of Martin, of Cheltenham. There still remains a certain amount of work to be done in completion, but sufficient has been finished to enable the visitors to form a very fair idea of what promises to be a most successful and beautiful example of Mr. Prynne's work. The walls are built of Kentish rag, external casing, brick internally and concrete core. The stone work is in Bath with beautiful marble shafts and alabaster in the chancel arch and reredos. The charm of colour will not be wanting, as in addition to the architect's careful selection of tints in material, he has provided opportunities for picture painting on the walls which will give a band of colour decoration throughout.

THE SANITARY INSTITUTE CONGRESS AT LEEDS.*

DURING the discussion at the Sanitary Inspectors' Conference, on "Smoke Abatement," it was suggested that a recommendation from the Conference should be made to the Council of the Institute to bring under the notice of the Local Government Board the desirability of forming joint committees representing administrative counties and county boroughs for the purpose of the better enforcement of the provisions of the Public Health Act in regard to black smoke. The suggestion was adopted and embodied in a resolution which the Conference passed, and then adjourned till Thursday.

Other subjects brought before the Conference before it finally concluded on Thursday were "Sanitary Jurisprudence," in a paper by Mr. J. Lindsay (Glasgow), proposing amendments in the form and administration of the Public Health Act, the Food and Drugs Act, and the Margarine Act; on a case of typhoid fever in a house with faulty drainage, by Mr. Roechling, A.M.Inst.C.E.; and "Practical Sanitation in Relation to Food Supply," by Mr. Louis Hanks.

The subject of superannuation of sanitary officers was introduced in a paper by Mr. R. Lindsay (Sanitary Inspector for Midlothian). The chief contention of the paper was that the Local Authorities' Officers Superannuation Bill, 1897, should be extended in its scope so as to include Scotland and Ireland, instead of being limited to England and Wales. The Conference adopted a recommendation to the Council of the Institute to support the Superannuation Bill promoted by the Sanitary Inspectors' Association.

Dr. Farquharson seconded this recommendation, which, he said, he would take care to forward to the proper quarter. He undertook, also, when the Bill came before the House of Commons to be sponsor for it.

CONFERENCE OF MEDICAL OFFICERS OF HEALTH.

Among the papers considered in this conference, over which Dr. E. C. Seaton (Surrey County Council) presided, was one on "Small Isolation Hospitals," read by Dr. Meredith Young (Crewe).

In the course of his paper Dr. Young gave as the average cost of keeping up isolation hospitals of the nature described, 25*l.* per bed per annum, inclusive of salaries and wages, but exclusive of interest on cost of construction. The annual cost per annum was set down at 10*l.* or 12*l.* for each patient.

Dr. J. F. J. Sykes (St. Pancras) read a paper on "Tenemented Buildings and Duties on Inhabited Houses," in the course of which he submitted a form certifying that 400 cubic ft. of air space per person is provided, and that certain sanitary requirements as to height of rooms, water supply, and drainage are fulfilled. He considered that in future new houses additional requirements may be expected, for providing at least one sufficient space or lobby open to the air for the use of all the occupants on each floor; securing that perflation is not obstructed, and that sufficient accommodation for bathing is provided for all the occupants of the house. In conclusion, he said that constructors of this class of buildings will have in future to consider whether they shall build them with balconies or staircases open to the air, and so escape both inhabited house duty and the certificate of the Medical Officer of Health; or whether they shall build them with inside staircases and become liable to inhabited house duty, and to the requirements of the Medical Officer of Health in order to obtain his certificate.

* Concluded from last week, p. 223.

CONFERENCE OF MUNICIPAL REPRESENTATIVES.

Councillor Womersley (Chairman of Leeds City Sanitary Committee), who presided over this Conference, outlined in an inaugural address a scheme to which the City Council is committed for disestablishing a great insanitary area, which still exists in Leeds, and for carrying out at the same time the provisions of the Housing of the Working Classes Act. The scheme referred to, which was explained more in detail in a subsequent paper, would deal with a densely populated area of seventy-five acres, in which a death rate prevailed of 39·2, while that of the whole city was only 20·6. In reviewing the sanitary progress of Leeds during the Queen's reign, some remarkable statistics were adduced. The population had increased in the century from 53,000 to 409,000, and the inhabited houses from 11,600 to 86,730, a population equal to that of Windsor or Durham being added every two years. The improvements in water supply, in the provision of open spaces, the cleansing of the streets, disposal of sewage, and the provision of hospitals and infirmaries were sketched. The sewage treatment adopted is that of lime precipitation with large settling tanks through which sewage flows slowly, depositing as it goes. When this system was adopted the population of Leeds was but 250,000, and, said the President, "we feel that we have outgrown the capacity of these works. The minds of our City Fathers are sorely troubled just now as to the best system to adopt to meet the growing demands of our ever-increasing population, and the difficulty of dealing with certain trade effluents."

An interesting paper brought before the Conference was on "Workmen's Dwellings in Belfast," by Mr. James Munce. Under the Improvement Act of 1845 the Corporation cleared away many old lanes and courts and constructed miles of streets 70 ft. and 80 ft. wide. The course of improvement was continued under later Acts obtained in 1865 and 1878. The privy gave place almost universally to the water-closet, and great improvements took place in the condition of ashpits. The houses of the workers, where the rent is collected weekly, are fitted with blinds, gas-fittings, and in many cases baths, and recently a plan has been approved for supplying hot water to the sculleries of even small houses. Every family has its own separate dwelling. Out of a total of 46,376 houses 42,240 contain one family each, and 3,745 two families, the remainder, including a workhouse and two barracks, numbering only 391. The houses are built of good bricks and mortar. The exterior is faced with red perforated bricks as a rule, but in a few cases cement is used on common bricks. Party walls are carried up to slates, but not through except in cases of shops adjoining dwellings. Workmen's houses in Belfast are either kitchen or parlour houses, the rents varying from 2s. 6d. to 3s. 9d. per week for the former, and from 3s. 6d. to 6s. for the latter class. For 3s. 9d. per week the Belfast workman could get a house of three rooms supplied with water, gas-fittings, and blinds, with 100 square feet of open space, and nothing to pay for rates or taxes. The parlour houses had tiled hearths, marble or enamelled slate mantelpieces, and, in most cases, baths and fittings, and, except in heights of ceilings and size of rooms, were fitted much on the same plan as houses letting up to 50*l.* a year. The water supply of Belfast being constant, it is brought from the mains direct to the scullery, with branch to supply the cistern of the water-closet—the only cistern in the house. Each room is provided with at least one gaslight, and for the smaller houses the penny-in-the-slot meters are largely used.

In the discussion which followed, the prevalence in so many streets in Leeds of back-to-back houses was condemned by several speakers

Mr. Munce denounced back-to-back houses as relics of the last century. There was not a single-roomed house in Belfast, and nearly all the attempts to provide improved dwellings had proved lucrative. Leeds ought surely to be ashamed of its back-to-back houses.

Councillor Womersley, in bringing the discussion to an end, said allowance should be made for the fact that the building of back-to-back houses was an old practice in Leeds, of which it was not easy to get rid. The modern back-to-back dwelling in Leeds was a great improvement on the old type of such houses, and was fairly healthy.

A vote of thanks having been accorded to Mr. Munce,

Dr. Childs read a brief paper on the "Munich Slaughter-House and Cattle Market." The slaughter-house, which is separated by a wide road from the cattle-market, consists of three double halls for the slaughter of large cattle, two smaller halls for small cattle, and one for swine, the six buildings being separated from one another by roadways 50 ft. wide. Smaller buildings are provided for the slaughter and examination of diseased animals, and for the slaughter of horses, and others for the collection of blood, treatment of offal, for quarantine stalls, stalling for animals about to be slaughtered, and for the offices and dwelling-rooms of certain officials. The cattle market also consists of six large halls, with smaller buildings for restaurant, weigh-house, and stables.

CONFERENCE ON RIVER POLLUTION.

The President of this Conference, Major Lamorock Flower (Sanitary Engineer to the Lee Conservancy Board) in an opening address, referred to his Board as the senior body of conservators in the realm. It was charged by King Henry VI. in 1424 with the duty of preserving the river Lea and its tributaries from pollution, which gave the Lea Conservators control over the whole catchment basin. In his (the President's) opinion, every pollution was preventable, and that, in fact, the remedy when found would in many cases confer real benefit on the offending manufacturers. He did not expect much to be done by legislation until it was improved by abolishing all special clauses and exemptions and making the fouling of streams a penal offence. He advocated the appointment of an officer such as the Water Examiner of the Local Government Board, who would be the nspector of Sources of Water Supply. He had always set his face against prosecutions. He would ask, rather than try to compel. Why not combine in a guild and endeavour to bring co-operative principles to our aid? The members of such a league might be incorporated advantageously with the Fisheries Preservation Association, and might act upon the same principles which governed it.

Several other papers were then read and discussed.

CONFERENCE OF MUNICIPAL AND COUNTY ENGINEERS.

Mr. T. Hewson (Engineer to the Leeds City Council), who presided over this Conference, opened the proceedings with a brief address, and then called upon Mr. C. Mason to read a paper on "The Sanitary Aspects of Wood Pavement." Admitting at the outset that asphalte was the most sanitary of all materials for a pavement, Mr. Mason said that except for comparatively level roads its use would be practically prohibited so long as we depended on horses for haulage. No complaints would be made against wood pavements on sanitary grounds if suitable kinds of wood were employed, or if the work was properly done, and there was an efficient system of scavenging. Wood pavements were either of "hard" wood of the Eucalyptus kind, known as "Karri" and "Jarrah," imported from Western Australia, or of "soft" wood, generally the red or yellow pine of Northern Europe. The essential qualifications for a good pavement were, in the first place, a properly constructed roadway. It should be of cement concrete floated over and formed to a proper contour to receive the wood blocks, which should be regarded as a mere wooden covering for the purpose of protecting the roadway. The blocks should be laid directly upon the roadway with the necessary falls in the channels towards the gullies for surface drainage. Other essentials were careful maintenance and renewals at sufficiently frequent intervals, and good scavenging. The life of a wood pavement was from five to twelve years, according to the amount of traffic, quality of wood, and method of laying. The author had used satisfactorily "soft" wood impregnated with creosote (10 lb. to the cubic foot). He considered wood suitable for town pavements on account of its being less noisy and less slippery than any other kind of pavement suitable for heavy traffic, and in order to overcome the objections, all soft woods should be properly creosoted (in vacuum and not simply dipped), the blocks laid "close

jointed" to a proper contour both transversely and longitudinally, and grouted with bituminous composition. When thus laid he did not find that the blocks expanded more than necessary to bind the whole pavement together. The author referred all interested in the subject to that portion of the Strand, between Trafalgar Square and Charing Cross Station, which had now been in use for four years and washed daily without any material defects, although subject to an enormous daily traffic.

A discussion followed, in which Mr. Price (Birmingham), Mr. Rounthwaite (Sunderland), Mr. Cox (Bradford), and Mr. White (Folkestone) took part, the latter stating that they would lay no more soft wood pavements at Folkestone. They had one street laid with soft wood and one with hard wood. Both were washed every morning, but they found the soft wood took a long time to dry, and gave off a foul smell.

Mr. Mason, in reply, said the soft wood at Folkestone could not have been creosoted, or they would not have had any difficulty.

A paper was then read by Mr. F. T. Baggallay on the new "Royal Baths at Harrogate." After touching upon the history of Harrogate as a bathing town during 300 years, the author stated that in 1841 the Improvement Commissioners built the "Royal Pump Room," and when Harrogate became a municipal borough the Corporation purchased all the principal springs and devoted great attention to preserving the purity of the waters. Recently they built the "Royal Baths," at the cost of 120,000*l*., and it was opened a few weeks ago by the President of the Sanitary Institute, H.R.H. the Duke of Cambridge. For the convenience of invalids, all the rooms are on one floor, there being no steps except at the entrances. In the two main departments there are 172 bath and dressing-rooms, and in the whole establishment 10,000 gallons per hour of hot water alone will be used. The grand central hall is fitted as a pump-room.

A discussion followed, in which Mr. E. T. Hall, the Mayor of Harrogate, and Alderman Ward took part, Mr. Hall declaring that the building had been very carefully planned. A vote of thanks was accorded to Mr. Baggallay, who briefly responded.

Dr. Bushell Anningson read a short paper on "Some Dangers and Difficulties of a Combined System of Drainage." Dr. Anningson gave instances of the communication of the poison of typhoid fever from one household to others adjacent, where there was a common conduit into which several houses drained. Under existing legal difficulties, the best remedy appeared to be to treat a common conduit as a real branch sewer, and disconnect each contributory house by an air interceptor and ventilating shaft of its own; and, further, in newly-developed building estates, to insist upon a back alley between two parallel rows of houses, as is required under some Local Acts. They should be acquired, the only objection to such a scheme being that the distance between the back of the premises and the back alley involved, in order to obtain adequate fall, a depth of sewer which might not readily conform to the level of the public sewer already existing.

A long discussion followed, the President, Mr. Lewis Angell, Mr. Price (Birmingham), Mr. Silcock (King's Lynn), Mr. Munce (Belfast), Mr. Mason (London), Mr. Mawbey (Leicester), Mr. Gloyne (Eastbourne), Mr. Dawson (Banbury), taking part. Mr. Angell said the practice had been recognised for forty years, and sanctioned by two Acts of Parliament until, about four years back, clever lawyers had found a way to drive a coach-and-four through the Acts by giving new interpretations to the terms "drain" and "sewer." The opposition of property had so far defeated all attempts to get a definite settlement of the matter.

Mr. Price said that in Birmingham the Corporation had declared the drains to be public sewers, and they called upon the property owners to provide a back alley where requisite.

Dr. Anningson replied to the criticisms, and was accorded a vote of thanks before the Conference closed.

THE LADIES' CONFERENCE.

The Congress on "Domestic Hygiene" was presided over by Mrs. Fawkes, who delivered a brief address, and this was followed by papers on "The Preservation of Sight in Children," "Women as Teachers of Hygiene," "Education of the Speaking Voice," "Health in Infant Schools," and other subjects. The business not being concluded on Wednesday was resumed on Thursday. Before rising, the Conference adopted two recommendations to the Council of the Institute, the first in favour of appointing one or more women as additional sanitary inspectors in Leeds, and the other in favour of instituting an examination in hygiene for girls and young women, a syllabus of work to be done being drawn up on the same lines as those of sanitary inspectors.

SECTION OF ENGINEERING AND ARCHITECTURE.

This section was presided over by Mr. Lewis Angell. On Thursday the principal paper read was that by Mr. Edwin T. Hall on "Fever Hospital Construction," and on Friday seven different papers on methods of "Sewage Purification" and "Sewage Treatment" were read.

The President, in his opening address, pointed out that it was not until the reign of Victoria, and almost identically with her accession, that the profession of civil engineer came into existence, a profession which had its origin in England. Engineering and architecture represented the constructive side of sanitary science, but, unfortunately, other departments of the profession were directed to the destruction of human life. Although England originated sanitary work, democratic America had gone ahead of us, for there that great offender, the plumber, had been put under official inspection, and State Boards of Health, especially that of Massachusetts, had done conspicuously good sanitary work. After a comprehensive review of the progress of sanitation, the President said, "the cardinal conditions of health are pure air, pure water, and unpolluted earth which, with the accessories of wholesome food, proper clothing, and suitable houses—the necessaries of life—comprise the whole gospel of sanitation, the exponents of which are the conscientious builder and the intelligent housewife. . . . The defects enumerated were once general in all houses, and still remain in many. Architects did not trouble about such unæsthetic matters; they were left to "rule of thumb" men. The architect left it to the builder, the builder to the foreman, the foreman to the bricklayer or plumber, and the bricklayer to the labourer, until, sanitarily, we had a veritable house that "Jerry" built, perhaps artistically decorated and pleasing to the eye, but rotten at the core.

The conclusion of the President's address was largely devoted to the advocacy of increased efforts towards perfecting the education of members of professions, and also of public opinion, for it was a political axiom that legislation should not be in advance of public opinion. The signs of this desirable education of public opinion were multiplying. The working classes, once so apathetic, were now eager in promoting sanitary inspection, perfect drainage, improved dwellings, public baths, recreation grounds, &c. These were among the most valuable features of sanitary progress, and a further indication was the enormous amount of the outstanding loans for public purposes, amounting to 224,158,376*l*., an increase in the last 22 years of 131,338,270*l*.

"We shall enter the twentieth century," said the President in his peroration, "late although it be, with full hygienic knowledge of the sound principles of sanitary work and the practical experience of the engineer and the architect. Every vital question has been discussed and, for the most part, legislated upon. We have the knowledge and we have the power, and require only the will. The will lies with the people and can only be called into action by their education; it is necessary, as was said by Robert Lowe, that we should 'educate our masters.' Amid all the agitations and unrest of this *fin de siècle* there are no conditions which would contribute more to the comfort and welfare of the community than sanitation, education, and thrift."

A vote of thanks was given to the President, on the motion of Alderman Lemon (Southampton), seconded by Mr. Richardson (Leeds).

Mr. Edwin T. Hall was then called upon to read his paper on "Fever Hospital Construction." All the essential principles of hospital planning were laid down in the memorandum of the Local Government Board, issued in 1888, "On the Provision of Isolation Hospital Accommodation by Local Authorities." They were (1) thorough isolation of infected buildings, (2) cross currents for thorough ventilation, (3) avoidance of dark corners anywhere, (4) necessity of keeping from direct contact with wards as far as possible receptacles for excrement. No matter what was the size of the hospital, these principles should govern. The happiest results had followed the decision of the Metropolitan Asylums Board, taken in 1885, to separate small-pox patients, from which the danger was greatest, from other infectious cases, and to establish for small-pox cases floating hospitals on the Thames, at Dareuth. With regard to size no general rule could be set up. It would depend upon the site, and particularly on the planning. If the wards were on a straggling plan, 500 beds might be too many, but with wards compactly grouped 500 might be none too many. In the opinion of Dr. (now Sir R.) Thorne-Thorne one bed per 1,000 inhabitants was generally sufficient. With regard to sites, an open area, surrounded if possible by roads which induced wind currents, on a gentle slope, with good trees near the boundaries, and as compact in shape as possible, would be found the best. Assuming that the pavilion system was decided upon, they would have to decide whether to make them of one or of two stories. Medically the one-storied hospital was the ideal, but the practical suggested and permitted of two-storied pavilions. [The paper was illustrated by a large number of plans and drawings, and to four of these the lecturer now pointed, representing (1) the plan of Brook Hospital, for about 480 patients, of which Mr. Aldwinckle was the architect; (2) Park Hospital (designed by the lecturer), the largest of its kind in the United Kingdom, providing for 548 patients; (3) a design of his own for 179 patients, at Plaistow; and (4) a design by Mr. Angell of a small hospital in Essex.] The Park Hospital contained forty-two buildings, had six miles of drains within the curtilage, twenty-nine miles of water and steam pipes, forty-two miles of electric wires, three miles of eaves gutters, and it had required a considerably larger number of bricks than the Blackwall Tunnel. A point to be noted was the position of the administrative buildings, dispensary, stores, water tower, &c., which were about equi-distant from the extreme points to be served throughout the hospital. He was decidedly in favour of covered ways in a large hospital, where the best arrangement would be to have subways carrying steam pipes for all services, electric wires for lighting, telephones and fire alarms, and water pipes to supply cisterns, baths, sinks, fire mains, &c., which would provide platforms for the covered ways, the roofs of the covered ways beings invaluable as balconies for the first-floor wards. Upon these balconies patients' beds could be wheeled for sun baths, the curative value of which was admitted by all doctors. The construction, in respect of floors, height and size of rooms, position of accessories, staff quarters, &c., was treated in considerable detail, and then the subjects of heating and ventilation, water-supply and drainage were considered. Horizontal pipes around the walls of a ward were to be deprecated and those in trenches not to be tolerated at all. It was far better to put all horizontal pipes in the open basement beneath the pavilion, protecting them by non-conducting material such as asbestos cement. They should be accessible at every part, and from them vertical pipes should supply the radiators. He was in favour of open fire-places, one for every 30 ft. of length of ward. Open fires gave cheerfulness to rooms, and were most valuable extractors of foul gases. A central stack was much better than a stove with horizontal flues carried to the external walls, such flues being harbours for germs, and difficult to clean. In a warmed central stack an upward current was naturally induced. The surface of the walls of a ward should be of impervious material faced with Parian, Keene's, or Robinson's cement, painted in various artistic colours to rest and please the eye, and varnished. All angles of walls, ceilings, floors, door and window joints should be concave, square angles being dust and germ harbours. With regard to drainage, the author said the drainage of all non-infected buildings should be kept distinct from that of infected buildings, and that of scarlet-fever pavilions should be separate from that of diphtheria buildings. All drains should be laid in straight lines with manholes at all angles, and the ventilation scheme should be most carefully studied. Pipes could be of stoneware or cast iron. All pipes, if of stoneware, should be laid on cement concrete, great care being taken to see that the gradients of trenches are regular

and the bottom solid. All soil drains, at least, should be covered with concrete after the pipes have been tested. No test was so good as filling with water from manhole to manhole, and there should be a head of about 5 ft. of water at the upper end. For manholes he had used Border's patent of solid glazed fire-clay. The motto for the inside of an infectious hospital should be, "Let nothing be hidden." All water and gas pipes should be not only visible, but kept away from walls and ceilings, so that all may be kept clean; all electric casings should be on the surface. Harbours for dirt and vermin should be avoided. All coal bunkers should be of galvanised iron, capable of ready removal. They should have rounded angles at the sides and next the bottom. One at least should be provided to every building, and none should be very large. In concluding, Mr. Hall made an appeal for an architectural treatment in all hospitals. He believed in the artistic treatment of wards as being of a refining as well as a curative value to patients. No greater or better evidence of the advance of civilisation and culture among peoples is observed, he said, throughout the world than in the character of their public buildings. Giant strides in domestic architecture have been made in England during the latter half of this century. Foreign critics have noted and praised this great advance, and surely when the people are building for themselves large public institutions they will desire that these should be worthy of the nation. Edinburgh has a world-wide reputation for her public buildings, but too many of our towns and cities are sadly lacking in architectural monuments. Public bodies demand, and rightly demand, that everything shall be provided in our hospitals that science can suggest for ameliorating suffering and curing the body. It is but a step upward and onward to demand that the exterior of the buildings should be graced with artistic treatment to educate and refine the mind.

In the discussion which followed, Mr. Udale (Lincoln) said he would like to know the kind of hospital Mr. Hall would recommend for a town of 50,000 inhabitants.

Major Scott Moncrieff, R.E. (War Office), confirmed the unfavourable opinion expressed in the paper with regard to stoves with horizontal flues. At the Curragh and also at Aldershot, where at one time they used stoves with horizontal flues, they had found the same defects which had been pointed out, and a change to open fireplaces had added materially to the comfort of the wards.

Dr. Pattin (Norwich) said he found the stoves with horizontal flues a serious nuisance. They invariably smoked when the wind was in certain directions, and then existence was intolerable. He was surprised to learn that no special provision was made for treating typhoid excreta at Park. There was only one remedy, and that was to burn it. He complained of the regulations of the Local Government Board with regard to the position of beds near to walls and windows. He preferred to admit fresh air under the bed.

Mr. Mason (London) wished to know what was the cost per bed of Park Hospital and of the smaller hospital at Plaistow; and Mr. Nield (Middlesex County Council) wanted to know what the cost was contrasted with the North Eastern Hospital, and such a hospital as that in Leeds.

Captain Andrews (Chairman of the Metropolitan Asylums Board) said that he could not answer the question as to cost because the hospital was not yet quite ready to receive patients.

Mr. Hall (Cowbridge), Dr. Wilson (Doncaster), Mr. Ridings (London), and the President, continued the discussion, and Mr. Hall was called upon to reply. As to costly buildings, the value to the public of really fine buildings was immense, and he thought it would be a sin if for a million of money we were to get something like Queen Anne's Mansions in London. The idea that a hospital must at some time be burnt down was exploded. With floors such as he had described, it was practically impossible. As to the cost of small hospitals, the same principles governed the cost of a small hospital as a large one. It was a mere matter of arithmetic. He could not, of course, tell them the cost of maintenance. He was glad to have the support of Major Scott Moncrieff on the question of central stoves. With regard to the hollow space left under the floor, which formed a kind of viaduct, he had fixed a minimum of 5 ft., but it might go to 6 ft. or even 7 ft. With regard to nurses, they had separate recreation rooms and reading rooms. With regard to burning excreta, the Local Government Board had found danger arising from the excreta in small-pox, but none whatever from that in scarlet fever. They must have crematoria and receptacles for collection and apparatus to be handled, so that the remedy would be worse than the disease. The cost of Park Hospital was under 400*l.* per bed. St. Thomas's cost 500*l.*, the Glasgow Hospital more than 500*l.*, but 400*l.* per bed in London was a very different thing from 400*l.* per bed in the country. A question had been asked in the House of Commons why the cost of building in London was so much more than in the country, and it was found that 300*l.* in the country meant more than 400*l.* in London. In the country wages were 33 per cent. lower and the cost of materials 45 per cent. lower than in London. He did not know the cost per bed of the North Eastern Hospital. In stating 400*l.* as the cost per bed he had not taken into account the cost of the land. To find that they must add about 13,000*l.* more.

The readers of other papers set down for the day not being present, the Recording Secretary, Major Lamorock Flower, read a short one on "The Disposal of Refuse in a Mining Village," prepared by Mr. A. Lupton, and, after a rather long discussion, in which the majority of the speakers expressed adverse views, the section adjourned.

On resuming on Friday, the first paper was read by Dr. Poore on the "Treatment of Domestic Slop-Water in Isolated Houses."

Professor Poore, having convinced himself that slop-water is as foul as sewage composed of excrement and slops, and that in certain cases it gives off gases more deadly than sewer gas, proposed to himself the question some years ago, "How can it best be treated?" A long and close series of observations led him to the conclusion that domestic slop-water, when fresh, is not offensive, but it frequently becomes very foul, and sometimes, when containing vegetable matter, very dangerous if allowed to stagnate. The method he adopted to cure the evil after it had been put to a three years' test was described in the paper, and illustrated by a series of twenty-eight plans and diagrams. The first necessity is to be able to carry off the slop-water, while fresh, to a distance from the house, and therefore all waste pipes should terminate well above the ground. The second necessity is that there must be no stagnation anywhere, and the third that, abolishing all traps, the slop-water should run in open gutters, and at a certain distance from the house should be allowed to soak away and take the natural line of drainage. Dr. Poore strongly condemned the practice followed by some architects of imitating in the country, where no necessity compelled, the cave-dwelling basement of the London house.

On the motion of Mr. W. J. Dibdin, a vote of thanks to Dr. Poore was agreed to.

The question of sewage treatment by filtration and biological and non-chemical methods was then discussed, the following six papers being read in succession, before the discussion was taken:—"The True Principles of Sewage Purification," by Mr. W. K. Parry, which called attention to the research work of Mr. Walter E. Adeney; "The Scientific Basis of Sewage Treatment," by Mr. W. J. Dibdin and Mr. G. Thudicum; "Purification of Sewage," by Dr. Barwise, giving data from his practice in Derbyshire; "Filtration of Sewage through Coal," by Professor Bostock Hill, giving results of experiments at Wolverhampton and Lichfield; "A Year's Experience of the Septic Tank System," by Mr. Donald Cameron (Exeter), describing the recent experiments in sewage disposal at Exeter, the authorities of which have applied for a Government loan of 48,000*l.* to set up works on a large scale, on the Septic Tank system, for the whole city of Exeter; and, finally, on "Storm Water in Relation to Sewage Purification," by Mr. E. J. Silcock, Borough Engineer, King's Lynn.

An animated discussion followed, in which Messrs. Roechling, Councillor Baker, Alderman Compston, Dr. Rideal, Dr. Sims Woodhead, Colonel Jones, V.C. (Aldershot), Wolf Defries, W. J. Dibdin, the readers of the papers, and the President took part. The general impression seemed to be that the *coup de grace* had now been given to the chemical treatment systems, and that the natural—that is the biological—treatment would in future suffice, the destruction of organisms in waste matters being performed by the germs themselves. There was a disposition on the part of some to regard recent developments as something new, but Colonel Jones reminded the audience that the septic process had been going on for hundreds of years in our cesspools, and Mr. Dibdin pointed out that in 1883 and 1887 he had brought the subject before sanitarians and was laughed at. Dr. Sims Woodhead said we were not yet quite at the stage where we could say that one of these filters would take the place of a flowing river or a sewage farm, but there would certainly be an advantage in using first a biological filter for a preliminary breaking down of the organism.

In another section a paper was read by Mr. G. F. Carter (Assistant Engineer of Leeds) on the operation in Leeds of the "Housing of the Working Classes' Act, which excited considerable local interest, and in a popular lecture given at the Albert Hall, Mr. Percy Boulnois (City Engineer, Liverpool) gave many facts respecting sanitary improvements in Liverpool.

The closing general meeting was held on Friday, when Mr. White Wallis (Secretary of the Sanitary Institute) said that the total attendance at the Congress had been 1,360 members.

The usual votes of thanks were accorded to the Lord Mayor, Lady Mayoress, Corporation, and to Dr. Farquharson, M.P., the President.

ARCHITECTURAL SOCIETIES.

GLASGOW ARCHITECTURAL ASSOCIATION.—On the 14th inst. a meeting of this Association was held, Mr. George S. Hill in the chair, when the Hon. President, Mr. James A. Morris, delivered an opening address, entitled "Attainable Ideals." The lecturer exhibited on the walls a collection of working drawings which he had specially obtained from some well-known English architects, including the late John D. Sedding, and Messrs. John Belcher, Ernest George and Peto, Ernest Newton, C. F. A. Voysey, R. Schultz, Balfour and Turner, and Dunn and Watson. With these as his text, the lecturer showed how lofty ideals and noble sentiments were bound to raise and enoble the work of an architect, notwithstanding the apparently insuperable checks which beset him. He referred reverently to the late John Sedding, who though dead yet spoke powerfully to us. "His drawings show abundantly his vivid imagination, his keen desire for perfection and the infinite labour he gave in seeking it, his nervous directness of touch, his refinement, breadth, simplicity, and power." He spoke of Mr. Norman Shaw as, of those living, the first to build again on English soil on English lines, and asked that Scottish architects might turn more towards the simple dignity of their own country's ancient work. Mr. Shaw had written him that drawings were only a sort of alphabet with which to instruct the builder, and when the builder was done with them they should be burned, as apt to mislead people. The lecturer maintained that high ideals and noble thoughts would elevate and ennoble an architect's work, however great the influences restraining him were. He advised his hearers to study from Nature; to learn the subtle beauty and strength of the human figure, which was a mine of purest gold, inexchangeable in its richness; to seek dignity among the mountains and by the sea. From these they would learn that the greatest dignity was ever simplest, and he said, "If you once receive that truth and become imbued with it, your buildings, be they great or little, must ever partake also of the same power." He called attention to the care bestowed on the gardens, and said that the simple beauty of a fountain, a sun-dial, or a dovecot often appealed to one more than buildings of massive grandeur.—Mr. Alexander M'Gibbon proposed a vote of thanks to the lecturer. The Chairman expressed the sincere obligation of the Association to those architects who had so kindly lent their drawings. He then seconded the vote of thanks, which was heartily accorded.

COMPETITIONS.

MUNICIPAL BUILDINGS, RUGBY.—At a recent meeting of the Rugby Urban District Council plans were accepted for the municipal buildings to be erected in High-street, on the site of the old "Shoulder of Mutton" Inn. The designs accepted were prepared by Messrs. North & Hawk, architects, Battersea. The plans to which the second premium was awarded were prepared by Mr. D. Bird, of Manchester. —*Birmingham Post.*

Illustrations.

THE PONT MIRABEAU, PARIS.

THE new bridge over the Seine, under this title, which was officially opened by the President of the Republic on July 13, puts the quarter of Javel in communication with the quarter of Auteuil, and connects the Rue de la Convention, on the left bank of the Seine, with the Rue Mirabeau and Rue de Rémusat, on the right bank. This bridge makes the thirtieth over the Seine within the district of Paris.

The bridge is constructed of seven girders of laminated steel each in two symmetrical halves, articulated in the centre of the span, and anchored on the piers, in such a manner as to permit of free movement. The centre span is 98 mètres. The roadway is 12 mètres wide between the footways, which are 4 mètres or about 13 ft. each, so that the proportions of width of roadway are very liberal.

The first studies for the bridge were made as long ago as 1884, but the official order for it was not passed till 1893, and it was commenced in June of that year.

The work has been executed under the superintendence of M. Rabel, "Engènieur-en-chef" in the department of Ponts et Chaussées, assisted by M. Résal of the same department, and by M. Alby.

The decorative portion, which consists of four allegorical figures, one on each face of the two piers, and representing respectively "The City of Paris," "Navigation," "Progress," and "The Genius of Commerce," are by one of the most gifted French sculptors of the day, M. Injalbert, and give to the bridge an artistic interest which it could not have otherwise, though as a structure its general lines are agreeable and effective. The good sense and artistic perception of the French Government, in thus going to an artist of the highest class to furnish the sculptural decorations for an engineering work, forms an example which cannot be too prominently held up to English Government officials, though we fear there is little chance of it being followed in this country; the sum which it would be necessary to pay for the highest class of sculpture would probably be regarded in this country as a culpable waste of public money.

In his conception of the "Genius of Commerce," who is represented as mainly occupied in blowing a trumpet, it almost seems as if the sculptor intended a satirical reflection on the part which advertisement plays in modern trade.

The bridge has been carried out at a cost below the first estimate, which was 2,500,000 francs, while the actual expenditure has only amounted to 2,089,000 francs, including the cost of the sculpture, which amounted to 141,468 francs, or about 5,660*l.*; not a large sum for four high-class figures on a colossal scale.

THE GRANT MAUSOLEUM, NEW YORK.

WE give views to a small scale of the exterior and interior of the Mausoleum recently erected in Riverside Park, New York, to the memory of General Grant; also a plan, and a half-section to a larger scale, showing the treatment of the interior detail.

For the exterior view we are indebted to Mr. Moses King, of New York, who had the photograph made for himself, and has kindly lent it to us for our illustration. For the interior view and the plan and section we are indebted to the courtesy of the architect, Mr. Duncan.

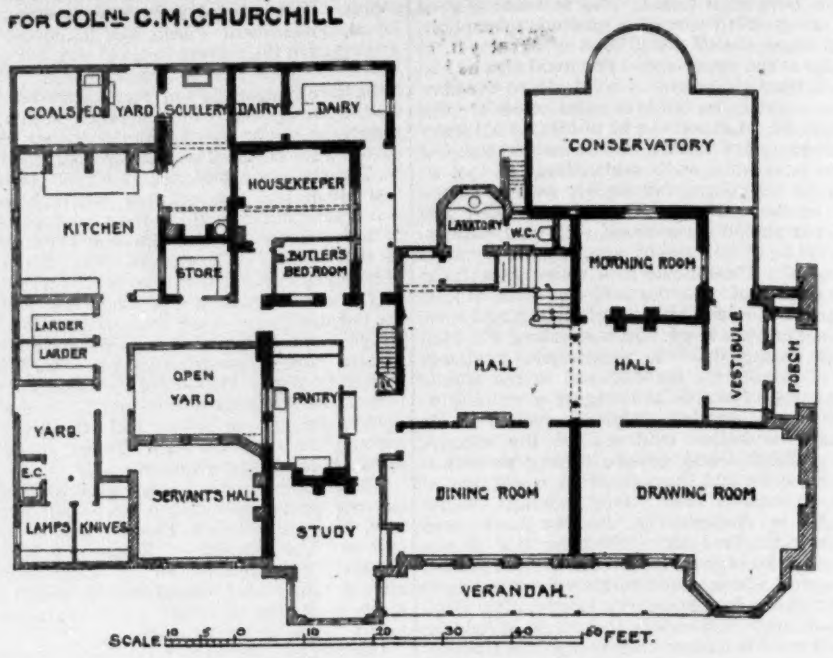
The whole work, which is one of considerable architectural importance, is the subject of a special article in another column.

DIRECTORS' ROOM — MESSRS. MACMILLAN'S NEW PREMISES, ST. MARTIN'S STREET.

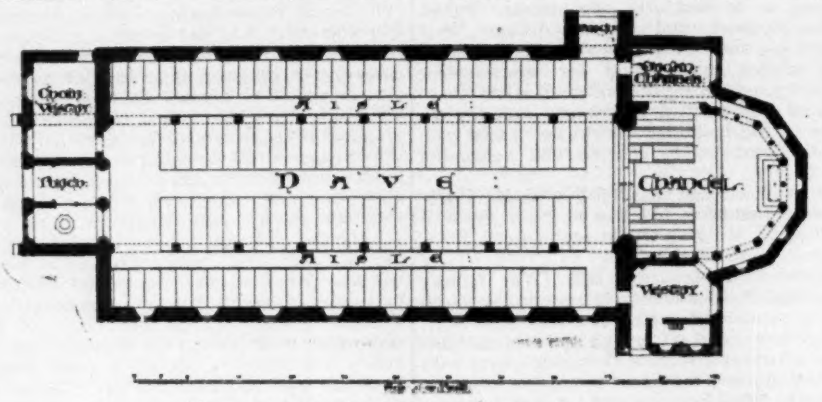
THIS room—which will be used as a private meeting room by the Directors—is situated in the caretaker's house, at some distance from the Board-room and suite of private offices.

The walls are lined partly with wainscot and partly with painted plaster; the ceiling beams being of wainscot with plaster panels between. The lower portion of the fireplace is of Ham Hill stone.

The joinery is being made by Messrs. Patman & Fotheringham, who are the contractors for the whole of the building. Mr. John Cash is the architect. The drawing was exhibited at the Royal Academy of this year.



"Holmwood Park," Wimborne. Plan.



Memorial Chancel, All Saints, Grays. Plan.

MEMORIAL CHANCEL, ALL SAINTS, GRAYS.

THE parish of All Saints, Grays, owes much to the late Lord of the Manor, Mr. James Theobald, who gave the church site and the present building; and it is proposed that the new chancel shall be dedicated to his memory.

The building will be of flint, in which the locality abounds, with stone dressings. Mr. Christopher M. Shiner is the architect.

The drawing was exhibited at the last Royal Academy.

HOUSE NEAR BANSTEAD.

THIS picturesque though simple little house formed one of the exhibits at the last Royal Academy, and was mentioned in our review of the drawings in the architectural room. Mr. Sydney Perks is the architect.

"HOLMWOOD PARK," WIMBORNE.

THE small portion of the house shown black on plan is old, but the greater part is new.

The walls are of brick, built with an air space between, with Fareham brick facings and roofs covered with hand-made Broseley tiles, battens, boarding, and felt. The external timber framing is of oak and the panels in white rough cast. The joiners' work to the best part of the house is in wainscot; also the floors. The modelled plaster work was done by Mr. Gilbert Seale from the architects' designs.

The ceilings to the dining-room, hall, and staircase are panelled with oak beams, and the drawing-room with plaster moulded ribs.

The builder is Mr. A. H. Green, of Blandford, Dorset, and the architects Messrs. Crickmay & Sons, of London and Weymouth.

The drawing was exhibited at the last Royal Academy.

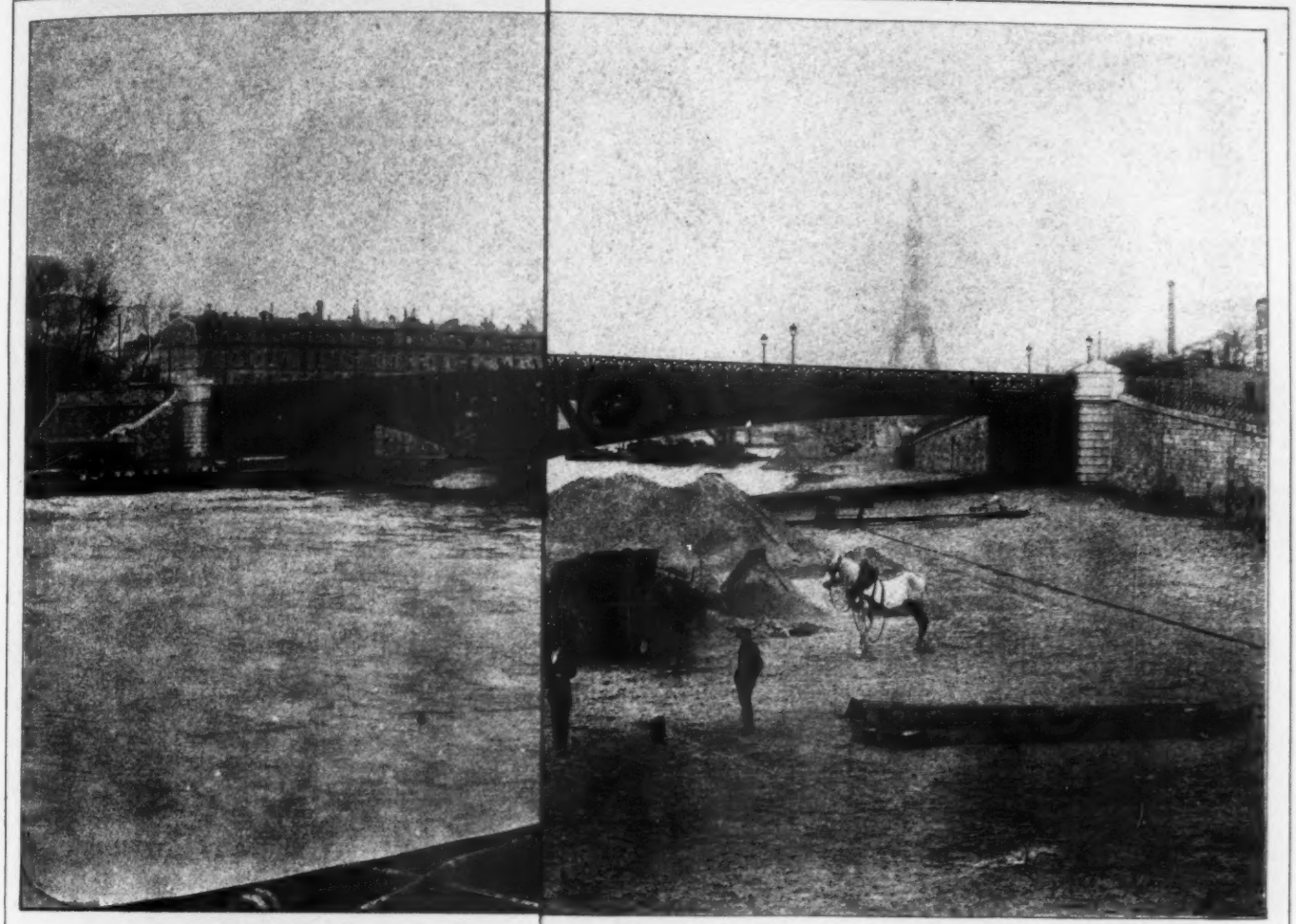
THE HEALTH EXHIBITION, LEEDS.

THIS exhibition, held in connexion with the Sanitary Congress, was formally opened by Sir James Kitson, Bart., M.P., Lord Mayor of Leeds, on the 14th inst., and is without doubt one of the most interesting and successful that has hitherto been held. It occupies temporary buildings erected on the Leeds Engineers' drill ground in Camp-road, and covers an area of about 1¼ acres, and contains 144 stalls. Sanitation is, of course, the predominant idea of the exhibition, but there are also shown objects of general interest and utility, which, undoubtedly, attract their fair share of attention.

Messrs. J. Duckett & Sons, of Burnley, have a very interesting stand, and among their exhibits which call for special mention are the "Clincher" wash-down closet, which obtained a bronze medal. The firm show how thoroughly it can be flushed by two gallons of water, this quantity being used by the judges when testing it; the flushing run is somewhat of a novelty and materially adds to the flushing force. A novel application of the flushing apparatus on the Tipping system is shown in a combined grease collector and flusher, constructed also to flush the yard drains and out-door water-closets as well. Another exhibit which appears new is a set of isolated syphonic latrines flushed with an automatic syphon cistern. Other features of the stall are a variety of access pipes, bends, and junctions, patent jointed pipes, and several forms of slop-water closets.

Messrs. Doulton & Company, Lambeth, have a very good exhibition of their sanitary and tile wares. Special mention should be made of Ellison's Patent O.B. Closet, fitted with a special flushing arrangement, by which the cistern and pipes remain empty when not in use.

A stall devoted to similar exhibits is that of Messrs. Shanks & Company, of Barrhead, N.B., who show a large number of lavatories and baths. With one of the latter, the "Fin-de-Siecle,"

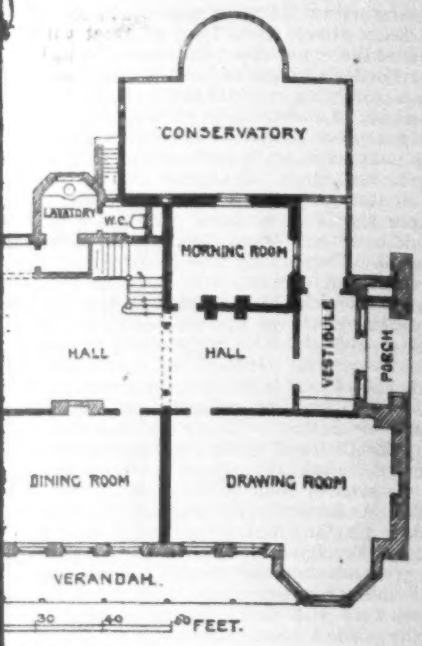


THE CITY OF PARIS.

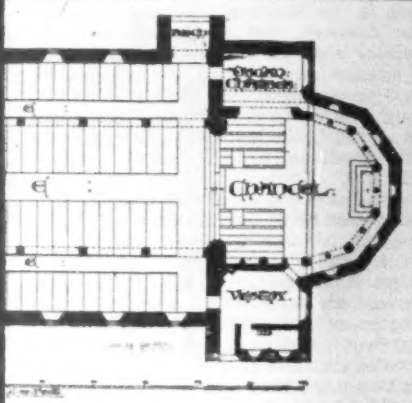
PROGRESS.

PHOTO. SPRAGUE & CO 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

DORSET.



Wimborne. Plan.



Saints, Grays. Plan.

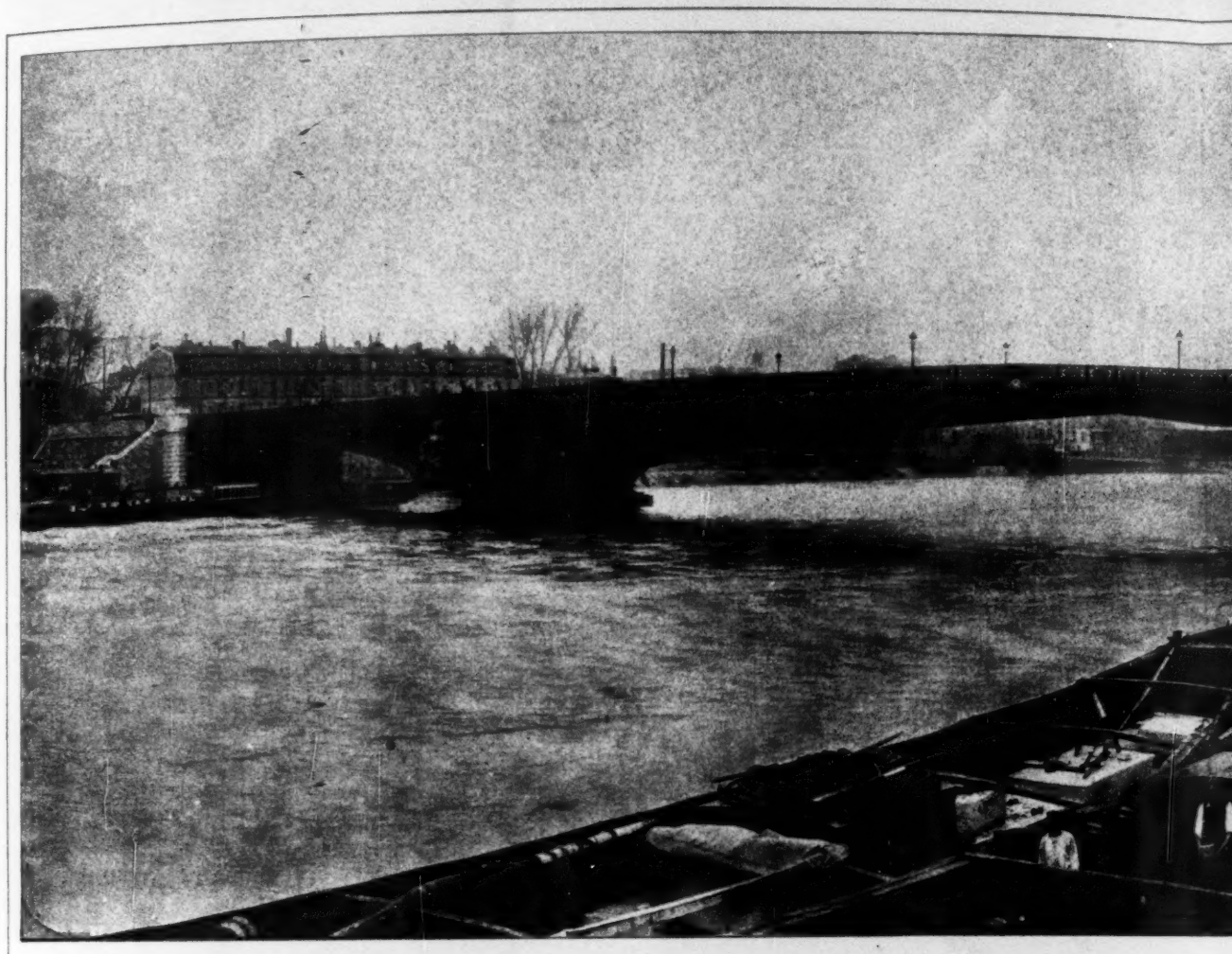
THE HEALTH EXHIBITION, LEEDS.

THIS exhibition, held in connexion with the Sanitary Congress, was formally opened by Sir James Kitson, Bart., M.P., Lord Mayor of Leeds, on the 14th inst., and is without doubt one of the most interesting and successful that has hitherto been held. It occupies temporary buildings erected on the Leeds Engineers' drill ground in Camp-road, and covers an area of about 1½ acres, and contains 144 stalls. Sanitation is, of course, the predominant idea of the exhibition, but there are also shown objects of general interest and utility, which, undoubtedly, attract their fair share of attention.

Messrs. J. Duckett & Sons, of Burnley, have a very interesting stand, and among their exhibits which call for special mention are the "Clincher" wash-down closet, which obtained a bronze medal. The firm show how thoroughly it can be flushed by two gallons of water, this quantity being used by the judges when testing it; the flushing run is somewhat of a novelty and materially adds to the flushing force. A novel application of the flushing apparatus on the Tipping system is shown in a combined grease collector and flusher, constructed also to flush the yard drains and out-door water-closets as well. Another exhibit which appears new is a set of isolated syphonic latrines flushed with an automatic syphon cistern. Other features of the stall are a variety of access pipes, bends, and junctions, patent jointed pipes, and several forms of slop-water closets.

Messrs. Doulton & Company, Lambeth, have a very good exhibition of their sanitary and tile wares. Special mention should be made of Ellison's Patent O.B. Closet, fitted with a special flushing arrangement, by which the cistern and pipes remain empty when not in use.

A stall devoted to similar exhibits is that of Messrs. Shanks & Company, of Barrhead, N.B., who show a large number of lavatories and baths. With one of the latter, the "Fin-de-Siècle,"

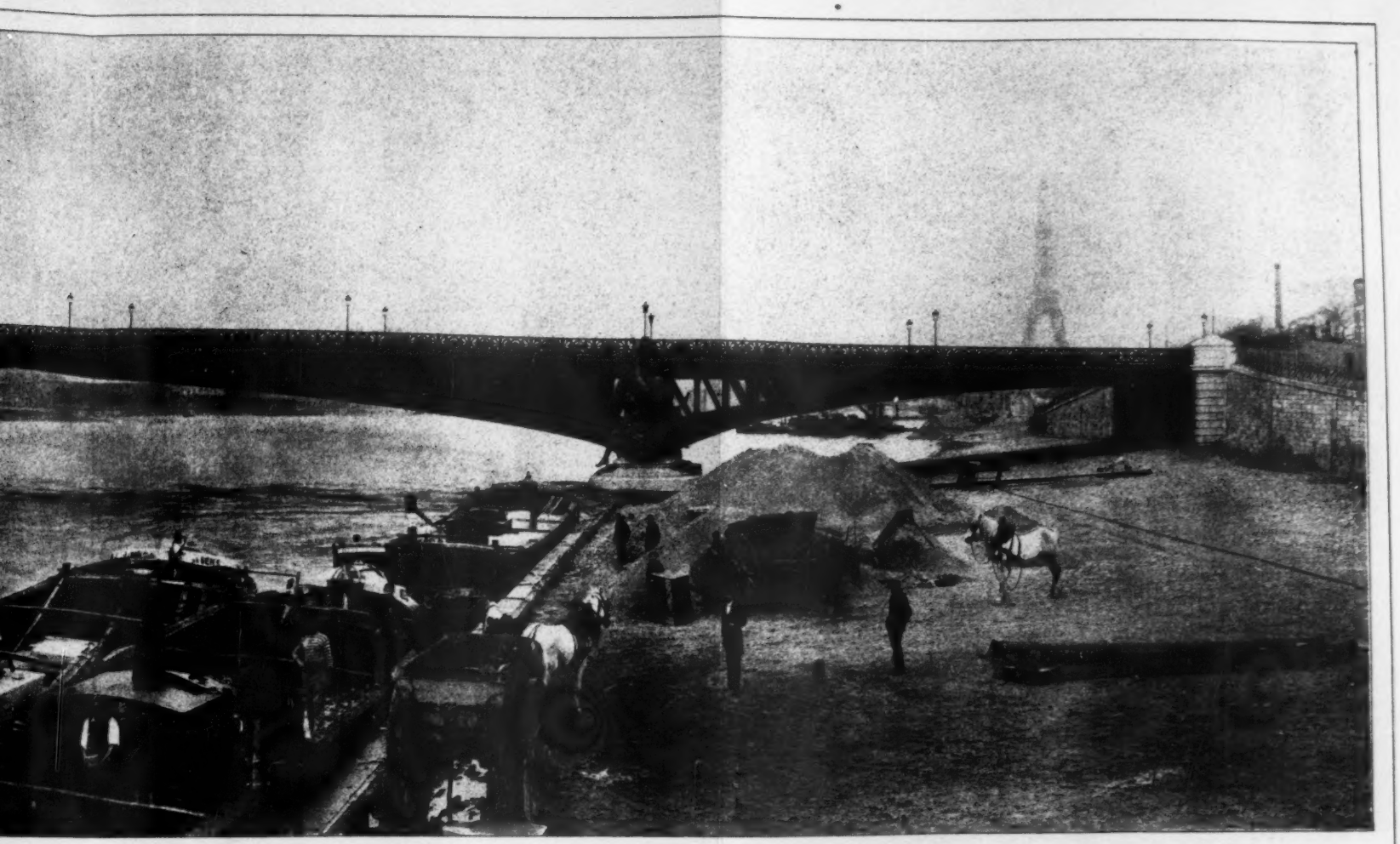


THE PONT MIRABEAU.

THE CITY OF PARIS.

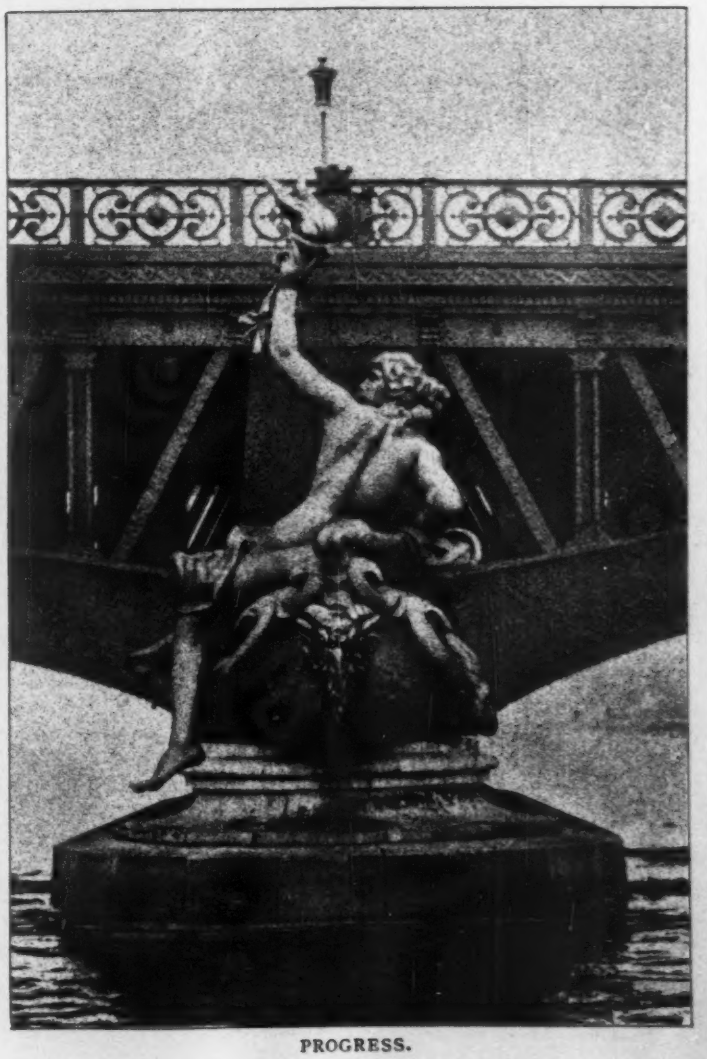
NAVIGATION.

SCULPTURE ON THE PIERS OF



MIRABEAU, AUTEUIL, PARIS.—M. RABEL, ENGINEER.

THE GENIUS OF COMMERCE.



PROGRESS.

E PIERS OF THE PONT MIRABEAU.—M. INJALBERT, SCULPTOR.

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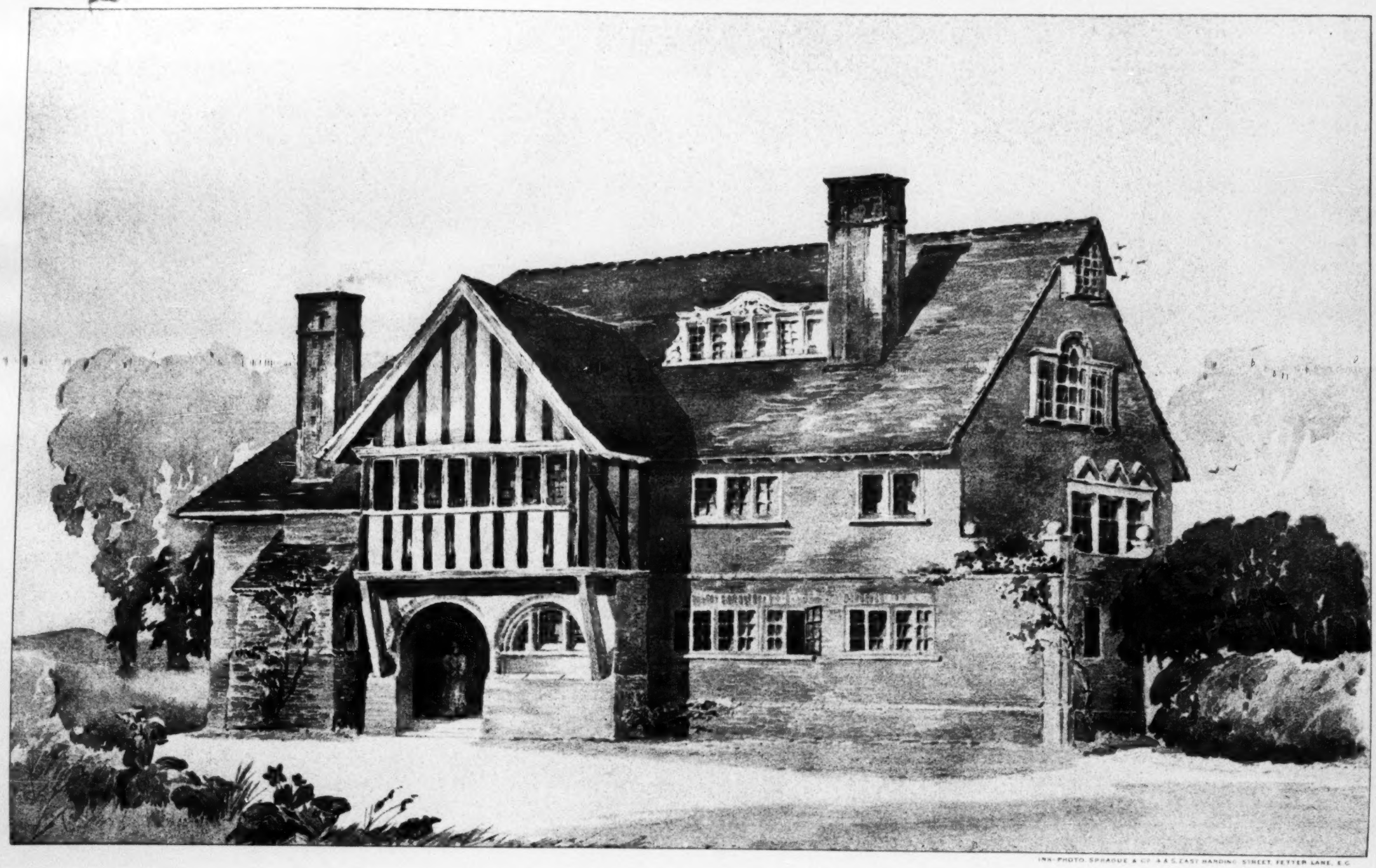


HOUSE NEAR BANSTEAD.—Mr. Sydney Perks, A.R.I.B.A., Architect.

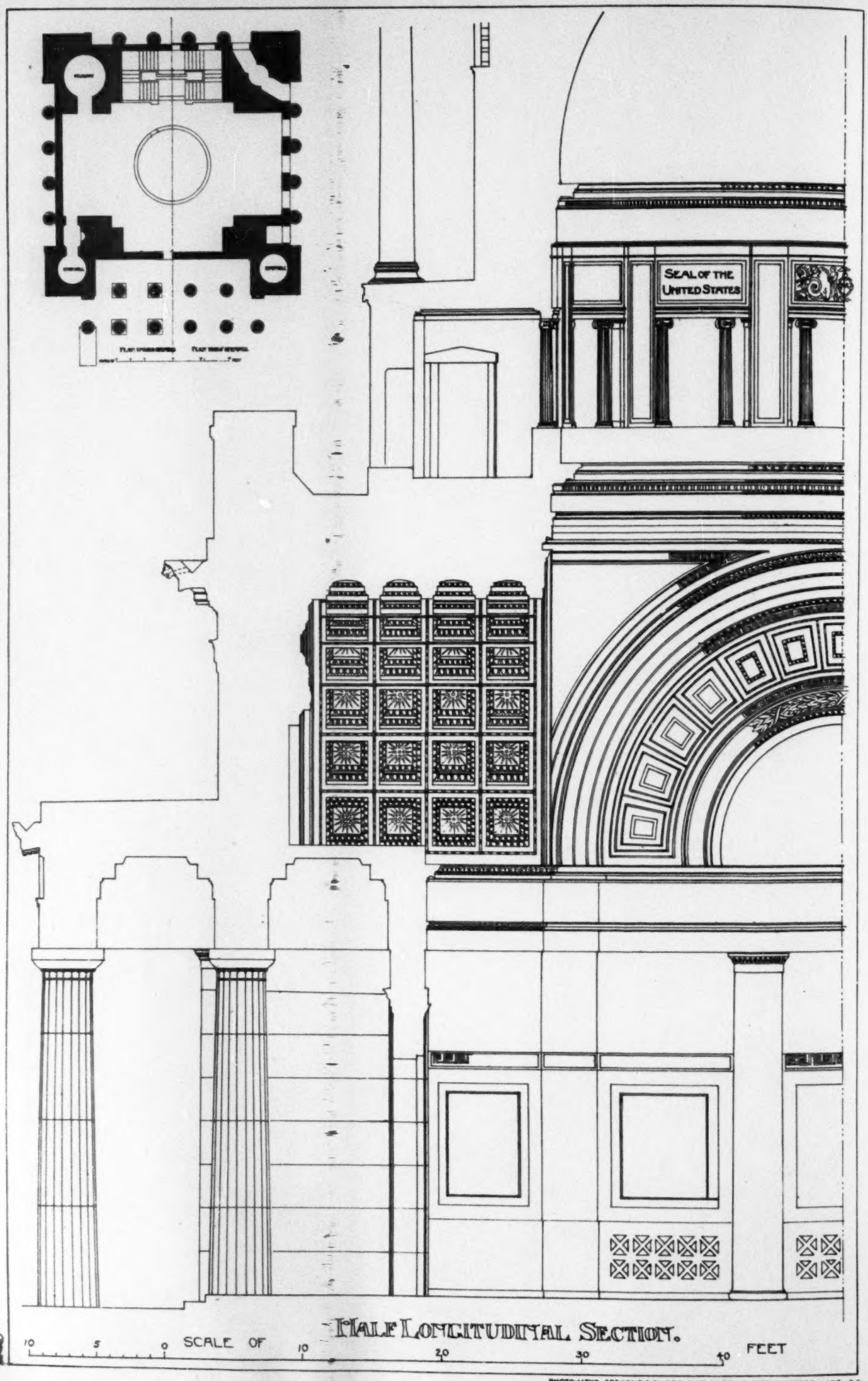
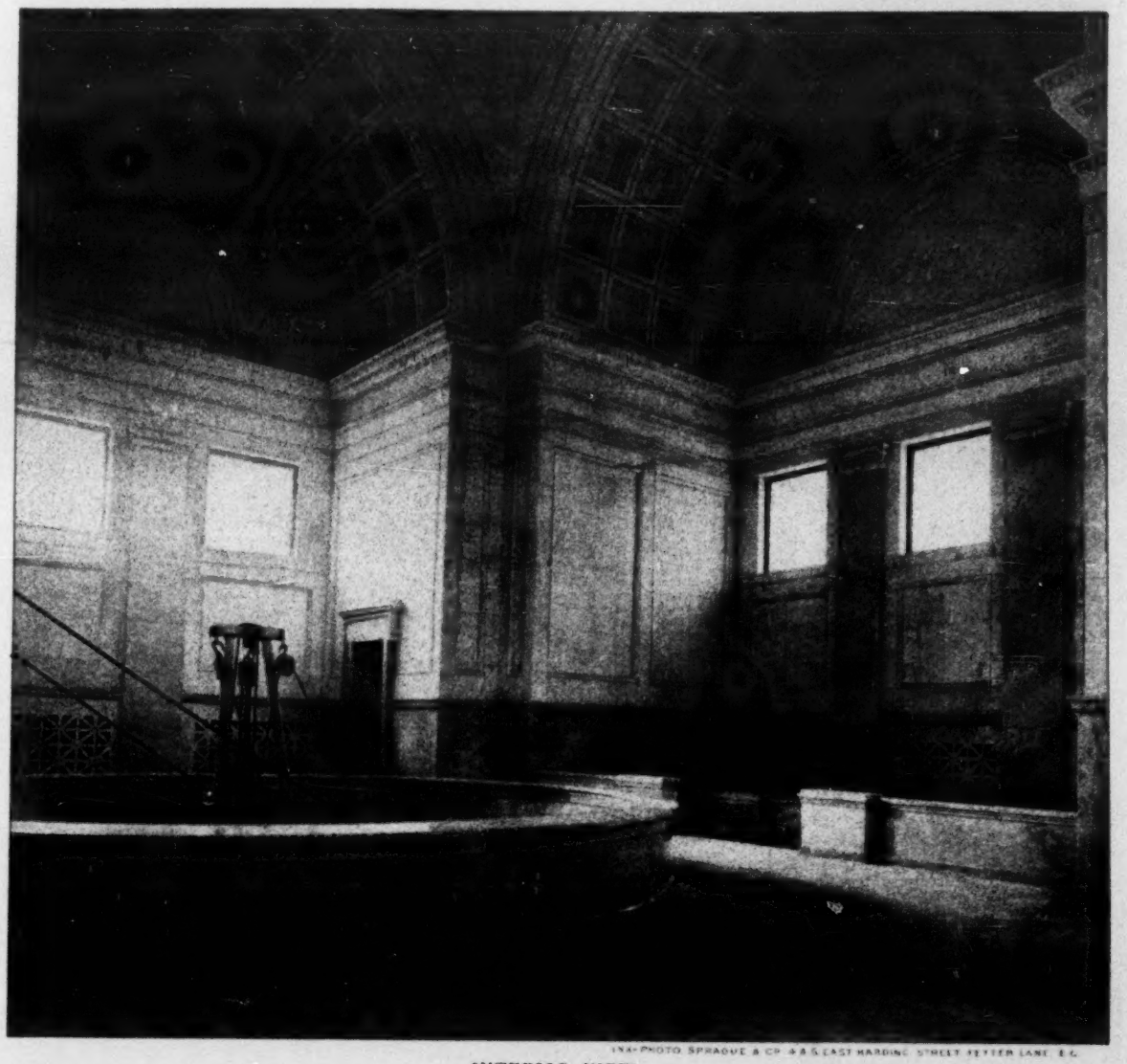


PHOTO-LITHO. SPRAGUE & Co 423, EAST HARDING STREET, FETTER LANE, E.C.

THE GRANT MAUSOLEUM, RIVERSIDE PARK, NEW YORK.—MR. DUNCAN, ARCHITECT.

PLAN AND HALF SECTION.

EXTERIOR VIEW.



INTERIOR VIEW.

THE GRANT MAUSOLEUM, RIVERSIDE PARK, NEW YORK.—MR. DUNCAN, ARCHITECT.

MESSRS. MACMILLAN'S NEW PREMISES: DIRECTORS' PRIVATE ROOM.—Mr. John Cash, Architect

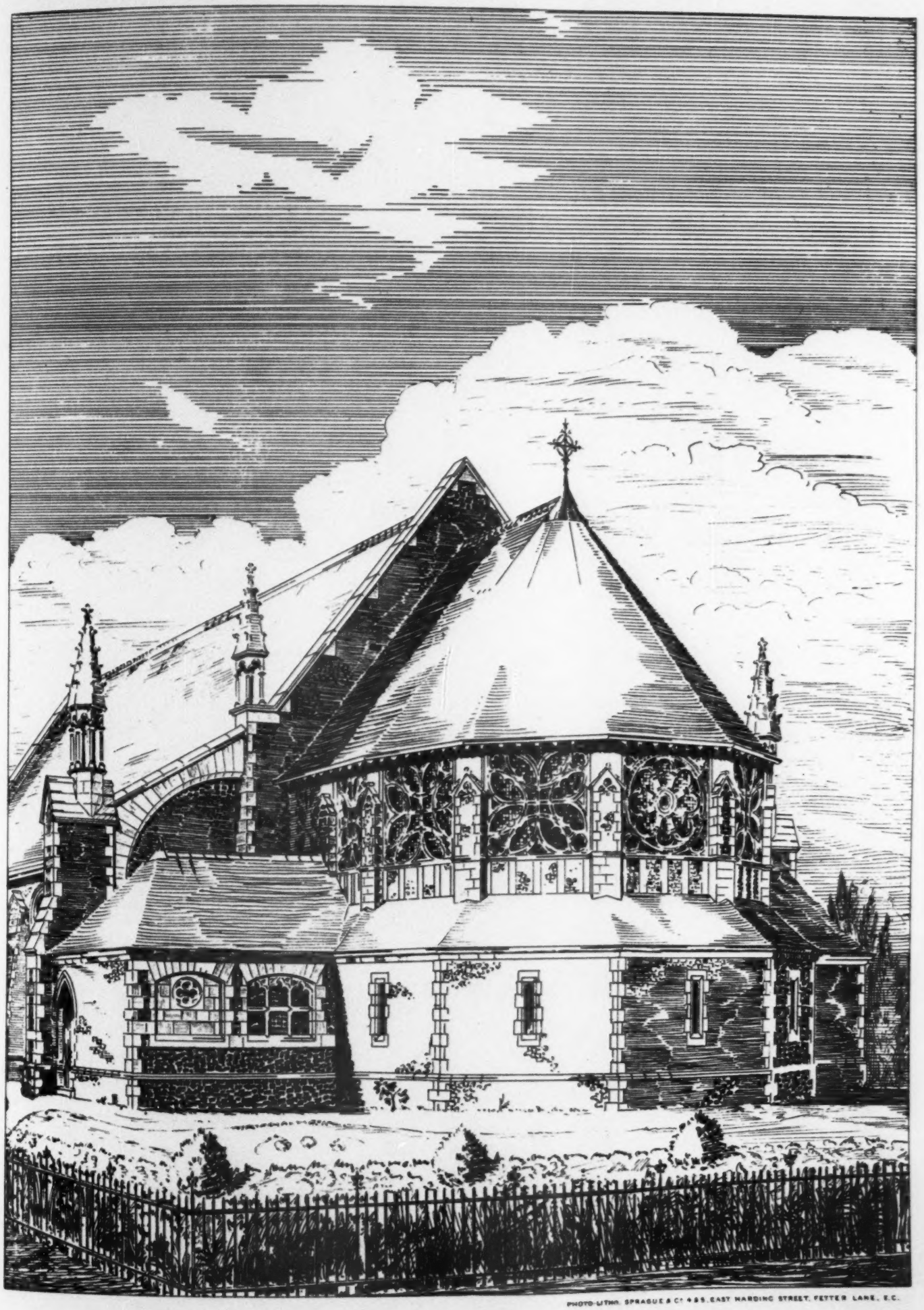
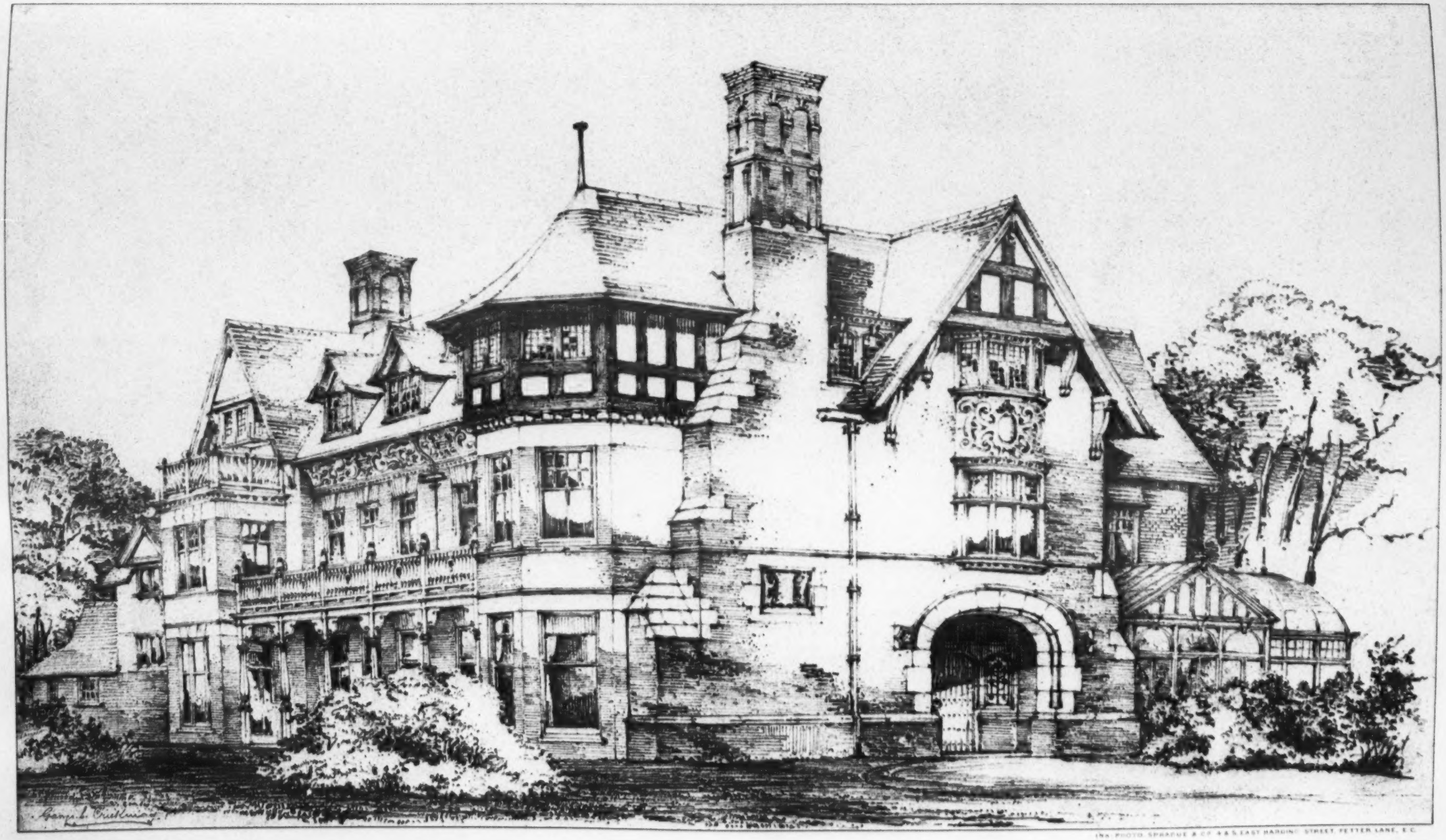


PHOTO-LITHO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

MEMORIAL CHANCEL TO THE LATE JAMES THEOBALD, M.P., ALL SAINTS', GRAYS.

Mr. Christopher M. Shiner, A.R.I.B.A., Architect.



"HOLMWOOD," NEAR WIMBORNE, DORSET.—Messrs. Crickmay & Sons, Architects.

they have obtained the premier award of a silver medal. Another stall devoted to sanitary ware is that of Messrs. Bowes, Scott, & Western, Limited, London, who show lavatory basins, closets, latrines, and syphon flushing tanks in great variety.

The Farnley Iron Company, Leeds, have obtained bronze medals for a white enamelled fireclay bath and a sink of similar material and finish. They show besides a large variety of sanitary fireclay goods, made from the Farnley fireclay, and with the Farnley glaze.

The Leeds Fireclay Company have on their stall fireclay exhibits of every description. They have taken a silver medal for wall decorations in Burmantofts faience, and six bronze medals for sinks, baths, terra-cotta, and glazed bricks, &c. The Company besides make and exhibit the following patent pipes, &c.: Hellyer's Patent Bracket Bed-pan Slop Sink, Winser's Channels and Bends, Hassall's Patent Safety Joints on Pipes, Leeming's Patent Duplex Pipes, Turley's Patent Pipe Joint, Stanford Jointed Pipes, Simpson's Patent Collars, Green's Sanitary Specialities, Le Rossignol's Trap, Mountain's Patent Connecting Collar, &c.

The Leeds Art Pottery and Tile Company, of Hunslet, Leeds, exhibit faience and tile work for which they have been awarded the bronze medal. They also exhibit specimens of their imperishable Keramic Mosaic, together with several examples of art pottery, &c.

Messrs. James Stott & Co., Oldham, on their stall exhibit electric ventilators, or air propellers. Their apparatus for humidifying, warming, and disinfecting air attracts special attention. It consists of a metal frame, fitted to that part of a building where the air is first admitted, carrying top and bottom parallel rollers round which an endless fibrous filter continuously revolves. At the foot of the frame, extending from side to side, is the water trough in which the lower roller works. The air is drawn through the screen by one of the electric air propellers, and can be heated at will by a stack of hot water pipes placed between the filter and the air propeller.

The Blackman Ventilating Company, London, have obtained a silver medal for their Coke Filtering Screen, which is composed of prepared coke between wire screens, with an arrangement for moistening, and fitted with a Blackman fan to force the air through. The coke may be moistened for disinfecting, deodorising, or perfuming the air.

The Torpedo Ventilator Company, Sheffield, have a stall devoted to ventilators of various sizes for schools, infirmaries, and public buildings and institutions of all kinds.

Mr. H. C. Webb, Birmingham, exhibits his Patent Reversible Window; the sashes are pivoted and placed one immediately over the other, not, as usual, one behind the other; this arrangement enables the employment of hinged and locking flies by which the sashes are made dust, draught, and burglar proof. By a bolt near their centres each sash can be fastened at any required angle for ventilation.

A source of danger has been removed by the introduction of Kendall's Patent Reversible Window Sash, as both the inside and outside of the window can be cleaned with ease by any one standing inside the room to which the window belongs.

The Eagle Range and Foundry Company of Birmingham, London and Bristol, have on view several of their kitchen ranges, and are also exhibiting a novelty which has not previously been put before the public, in the shape of the Eagle Patent Safety Man-lid to be used instead of the safety valve for the prevention of explosions in kitchen ranges.

The Ferrybridge Foundry Company have taken medals with both their exhibits. A silver medal has been gained with the Fryston Duplex Fire Kitchener, and a bronze medal with the Fryston Lifting Fire Kitchener. The duplex kitchener is so constructed that the temperature of any part of it can be regulated. The lifting fire range enables the fuel to be maintained in a line, both vertical and horizontal, to do the work it has to do with no possibility of accident from the falling of the fire-bars.

The Manchester Gas Cooker Company, Limited, Huddersfield, exhibit various gas-cooking ranges. The Davis Gas Stove Company, Limited, London, have a similar exhibit on their stall, and have obtained a silver medal for their "Metropolitan" Gas Cooker. The Morton-Pringle Gas Heating Company, London, The Cannon Hollowware Company, London, Messrs. Richmond & Co., Warrington, and Messrs. Charles Wilson & Sons all exhibit gas stoves, ranges, &c.

Mr. H. Jackson, Leeds, exhibits a useful and novel invention, which must prove invaluable in hotels, restaurants, &c. By means of his Patent Self-Feeding Circulating Instantaneous Water Boiler a supply of water at a temperature of 205 deg. may be obtained at the rate of one gallon per minute, with a consumption of 2 ft. of gas and under per gallon, in three minutes after heat is first applied, without any danger of explosion.

Mr. J. W. Kirk exhibits two forms of the 1897 Fire Feeder at work. This is a simple and cheap appliance, which can be adapted to stoves and fireplaces, and by means of which a considerable economy of fuel and consumption of smoke is effected and more heat generated from a given amount of fuel.

Messrs. William Woollams & Company, London, show various samples of wall-papers, both of early Victorian and modern design and manufacture. Arsenic enters largely into the composition of the former, but the exhibitors guarantee its absence in wall-papers of their manufacture.

The Cordelova Company, Limited, Edinburgh, exhibit Cordelova for wall and ceiling decoration, consisting of dados, friezes, fittings, and ceilings in relief, for which they have gained a bronze medal.

Messrs. Wilson & Stockall's Accident Ambulance Carriage has gained a bronze medal. It is of an improved pattern, and is fitted with a special apparatus for keeping the patient in a horizontal position when descending a steep hill. The same firm exhibited an ambulance for the conveyance of infectious cases, and a two-wheeled van for the removal of infected clothing.

A permanent and portable iron isolation infectious hospital, suitable for all purposes, has been erected by Messrs. Humphreys, Limited, London, in the grounds. The whole of the interior is of stained and varnished woodwork, and has been fitted by Messrs. Geo. Gale & Sons, Birmingham, with hospital and invalid beds, having recent improvements, in the way of castors which do not mark or scratch polished floors, and enable the beds to be moved with ease. These hospitals can be erected, and left fit for immediate occupation in from five to ten days. Messrs. Sissons, Hull, show a sample of new sanitary water paint, which disinfects, does not scale, and is washable in three weeks from the time of putting it on. Messrs. W. Summerscales & Sons, Keighley, exhibit a number of machines for the equipment of laundries, to work both by hand and steam power. The Pendleton Sanitary Engineering Co., of Manchester, had on exhibition a patent sanitary ashbin.

The Expanded Metal Company, whose Leeds representatives are Messrs. Motley & Green, have obtained a silver medal for their exhibit. By means of a recent invention, the process of manufacturing expanded metal has been completely revolutionised, and the material now produced is better, and can be made in greater varieties of weight and mesh than formerly. It is used for lathing, giving increased strength to concrete walls, floors, &c., and for fencing and enclosures of all kinds.

Mr. William Gooding, London, exhibits his patent interchangeable rubber stair tread, and also a patent combined safety valve and fusible plug, for which he has obtained a bronze medal. A list of awards is given below :—

Silver Medals.

The Blackman Ventilating Co., Ltd., London, Coke Screen for Ventilating Purposes.

Davis Gas Stove Co., Ltd., London, "Metropolitan" Gas Cooker.

J. Defries & Sons, Ltd., London, (1) Pasteur Chamberland Domestic Filter, (2) Portable Hot Spray Disinfector.

The Ferrybridge Foundry Co., Ferrybridge, Fryston Duplex Fire Kitchener.

Hughes & Lancaster, London, Shone's Hydropneumatic Ejector.

Jas. Milne & Son, Ltd., Leeds, "Instanter" Grip Fire Hose Connexion.

Leeds Fireclay Co., Ltd., Leeds, Wall Decorations in Burmantoft's Faience.

Shanks & Co., Barrhead, N.B., "Fin de Siecle" Bath.

Expanded Metal Co., Ltd., London, Expanded Metal.

Bronze Medals.

Cannon Hollow Ware Co., Deepfields, near Bilston, (1) Enamelled Cast Iron, (2) "Hercules" Gas Cooker.

The Cordelova Co., Ltd., Edinburgh, Cordelova Wall Coverings.

Claughton Bros., Bramley, Leeds, The "Niagara" Water Waste Preventer.

S. Dixon & Son, Leeds, Incandescent Arc Outside Lamp.

Alfred Dougill & Co., Ltd., Leeds, Gas Engine convertible into Oil Engine.

Jas. Duckett & Sons, Ltd., Burnley, "Clencher" Washdown Closet.

Farnley Iron Co., Leeds, (1) White and Coloured Glazed Bricks, (2) White Enamelled Fireclay Bath without Fittings, (3) White Enamelled Fireclay Sinks without Fittings.

William Gooding, London, (1) Combined Safety Valve and Fusible Plug, (2) Interchangeable Rubber Stair Treads.

Henry Jackson, Leeds, Self-Feeding Circulating Boiler.

John Jones, London, Releasable Stopper for Cleaning Arm of Disconnecting Trap.

Leeds Art Pottery and Tile Co., Hunslet, Leeds, Faience Tile Dados.

Leeds Fireclay Co., (1) Glazed Bricks, (2) Shoppee's Dovetail Bricks, (3) Tiltman's Division Bricks, (4) Vitreous Glazed Terra-Cotta, (5) White Enamelled Fireclay Bath without Fittings, (6) White Enamelled Fireclay Sink without Fittings.

Richard Mason, Hemsworth, Reversible Window and Fanlight.

Jas. Milne & Son, Ltd., Leeds, (1) Sink Waste Fittings, (2) Upright Combination Bath Fittings with large Outlets.

Noble Brown & Co., Leeds, Nobro Portable Fire Pump.

Patent Gully Co., Ltd., Nottingham, Crosta's Iron Road Gullies.

R. H. Quine, Pendleton, Manchester, Sanitary Ashbin.

John Russell & Co., Ltd., Leeds, (1) Wrought Iron and Steel Tubes, (2) Cup Fittings for Incandescent Gas Lamps.

Teale & Somers, Leeds, Raised Hearth and Sunk Fire.

E. Walker & Co., Heckmondwike, Walker's Block Tin Lined Iron Pipe.

Exhibits Deferred for Practical Trial.

Cameron, Commin, & Martin, Exeter, Septic Tank System of Sewage Treatment.

R. Clark & Co., Heckmondwike, "Eureka" Lead Incased Block Tin Water Pipe.

Abraham Thomas Cooper, London, Cooper's Suction and Vacuum Pump.

Davis Gas Stove Co., Ltd., London, Open Ventilating Gas Fire.

Alfred Dougill & Co., Ltd., Leeds, Tornado Air Propeller.

Doulton & Co., London, "Ellison's" O.B. Closet.

Geo. Jennings, London, (1) Duplex Supply and Sanitary Waste Valves for Lavatories, (2) Duplex Supply and Sanitary Waste Valves for Baths.

Jeyes' Sanitary Compounds Co., Ltd., London, Formogenic Auto-clave.

John Jones, London, (1) Automatic Flushing Cistern for Urinals, (2) Ball Valves.

Manchester Gas Cooker, Ltd., Huddersfield, Gas Governor.

Richmond & Co., Ltd., Warrington, Gulf Stream Geyser.

Sissons Bros. & Co., Ltd., Sculcoats, Hull, Sanitary Washable Distemper.

J. Stott & Co., Oldham, Electric Motor Dynamo.

Torpedo Ventilator Co., Sheffield, Torpedo Ventilators.

Valveless Siphon Co., Kirkstall, Leeds, Waterwitch Ball Valves.

E. Walker & Co., Heckmondwike, (1) Walker's Aluminium Lined Pipes, (2) Frost-Resisting Pipes.

Washington Lyon, London, Steam Disinfector.

Letters of Thanks or Recognition.

Adams & Co., Leeds, Gentlemen's Lavatory

Claughton Bros., Bramley, Leeds, Ornamental Lead Work.

Doulton & Co., London, Ladies' Lavatory.

Shanks & Co., Barrhead, N.B., Specimens of Old Defective Work.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The Ruabon Coal & Coke Co., Limited, have removed to their Paddington office, 17 Wharf, South Wharf-road, W.

Correspondence.

To the Editor of THE BUILDER.

THE TABERNACLE, MILTON ABBAS.

SIR,—It was very far from my intention to be discourteous or to give any pain to the Vicar of Milton Abbas in my speedily written and brief account of the visit of the Archæological Institute to Milton last August. I wish to withdraw anything that he thinks offensive.

I paid two visits to this grand old church in 1872, but did not specially inspect the tabernacle on the west wall of the south transept, not having a ladder or other means of reaching it. I then had "Murray" with me, which I parted with many years ago, but I am confident from my recollection and from notes that the edition then in use described it as a bell-cot, or some equivalent term. That it is in its original position, being so massively welded into the masonry, I have not the least doubt, nor do I think any practical person would doubt this after careful examination. It was in the same position more than 100 years ago, when two models of steeples, as they were then described, are mentioned as being against the walls of the church, one in the south transept, and one against the north wall of the chancel. It was then mentioned that the one in the chancel (the iron stay for which can still be seen) was much broken, and it has since disappeared. This in itself precludes the tabernacle in the south transept from having been for Reservation. There could only be Reservation before the high altar, and not in two places in the same church.

If Mr. Bousfield, or any one, would supply you with measured drawings of the opening into the tower or square story of the tabernacle, together with the interior arrangements or fittings of that part, it would at once be seen that it was for a bell, or a ring of bells on a barrel, and not for a pix.

Moreover, the side next the wall being left unpainted forbids the idea of its suspension in front of or over the altar where all parts would be visible. The whole affair is far too big and cumbersome to have been possible for use as a Sacrament House worked by a pulley. At all events, nothing in any way approximating it can be shown to have been used for such a purpose.

Sacring bells were certainly sometimes hung against walls or attached to screens. The will of John Baret, of Bury (1463), directs the "berere of the paxbrede" to "wynde up the plomme of led as oft as nedith," and "do the chymes goo at ye sacring of the Messe." Probably there was a musical chime within this Milton Tabernacle. I am now analysing the pre-Reformation wills of Northamptonshire, and have found two or three references to sacring bells that corroborate this view; though they do not definitely describe the bell-case, they clearly imply that there was one.

THE WRITER OF THE ARTICLE.

THE STUDENT'S COLUMN.

SIR,—The author of "Quantities and Quantity-taking" surely has made a mistake in stating that the measurement of slating can be taken as given on pages 188 and 189 in two dimensions.

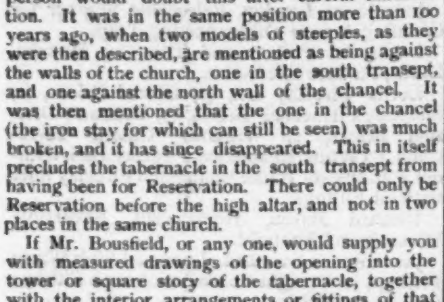
Surely the two dormer gables at back and the portion of porch roof into main one at front cannot be represented or be sufficiently taken by a straight dimension through?

A good deal depends, of course, upon the height of the dormer gables as to the proper amount of measurement; but reason will show that the two triangles of a dormer must be more than the space it covers at its base.

I fear contractors would not take this measurement, and it is misleading to students to represent it so. J. N. CROFTS.

SIR,—In reply to your correspondent, Mr. J. N. Crofts, I think he will find that he is in error with regard to his objection to the method of measuring slating as set forth on pages 188 and 189 of the *Builder*.

The accompanying sketch and explanation will, I think, make the matter clear to him.



The pitch of the roof to dormer gable being similar to that of main roof, it follows that the length of ridge (*a*) is equal to half the width of the gable (*b*). It is therefore evident that the bases of the triangle are equal.

As the ridge to dormer strikes the main roof at the same height as the gable, the slope of main roof (*c*) from this height is equal to that of the gable (*d*). The result is that we have two triangles for each side (one a deduction and the other an addition) which neutralise each other.

The height of the gables does not affect the question in the slightest degree provided that the pitch of dormer gable is similar to that of main roof.

I do not quite follow your correspondent's remark as to "the space covered by a dormer at its base," unless he has fallen into the error of imagining that the triangle on plan forming the plan of the dormer gable represents the *true* size of the deduction.

As to the last paragraph in his letter, I may say that I have followed the method given in measuring slating for a good many years and have never had it questioned, which, I think, would hardly have been the case were I so grievously in error as Mr. Crofts imagines.

THE WRITER OF THE "STUDENT'S COLUMN" ARTICLES.

FORM OF TENDER.

SIR,—The words "I hereby agree" which are so very objectionable to builders are still adhered to by a number of architects, although in a great many cases the words are altered before sending in, much to the annoyance of the architect.

The other day an architect informed me he had removed my name from his list owing to my alteration of his form.

Now, I could state several serious objections to the above words, but one is quite sufficient, and it does not admit of any contention, viz., is it reasonable or not that I should satisfy myself as to the responsible position of building owner before signing myself away?

It is not likely I could take this trouble beforehand on the remote chance of my getting the job. What would be thought of a dozen competitors applying to a banker or some one else as to the position of Mr. So-and-So?

I trust this will lead to some further consideration of this somewhat troublesome question.

The tender generally states that the owner does not bind himself to accept any tender, although he binds me to be accepted if he chooses.

T. H.

USE OF SLATES IN LONDON.

SIR,—I observe in the first volume of Aubrey's "History of Surrey," page 12:—"At Vaux Hall, Sir Samuel Moreland built a fine Room, anno 1667; the inside all of Looking Glass, and Fountains very pleasant to behold, which is much visited by strangers; it stands in the middle of the Garden . . . , covered with Cornish Slate; on the front whereof he placed a Punchanello, very well carved, which held a Dial, but the winds have demolished it."

The above is repeated in Peter Cunningham's "Handbook of London," and perhaps may be of assistance to "F. F. G." who wrote to the *Builder* on July 31 last, if he should be studying up the subject. W. F. POTTER.

OFFICE ROUTINE.

SIR,—I am anxious to ascertain the best means of planning out the office routine work of an architect's business—such as the necessary books and accounts, handling and filing of correspondence, and other papers. I am not aware of the existence of any literature dealing with the subject, and shall therefore feel much obliged if you, or any of your readers, can refer me to any books, pamphlets, or articles treating of the subject. "CASHIER."

The Student's Column.

QUANTITIES AND QUANTITY-TAKING.

CHAPTER X.—MODES OF MEASUREMENT.

Joiners' Work (continued).

Wall and Ceiling Linings.

WALL BOARDING, *per square superficial.*—State thickness, widths of boards, description of joint, as "matched and beaded," "matched and V-jointed," or otherwise. If the joint is moulded give a sketch. Include with the description the backings, keeping that plugged to wall separate from that on partitions, or take fixing blocks as *numbers*. Measure the boarding *net*, taking "raking, cutting, and waste," and "circular cutting and waste" at *per foot run*.

If the boarding is in short lengths to a dado keep this separate, describing as "in dado."

Ceiling Boarding, per square superficial.—Describe as noted for wall boarding, but if on wood joists no backings will be required, but if on concrete ceiling backings plugged to the concrete will be required. Keep boarding to soffits of stairs separate; again separating that to soffit of winders from the remainder. As boarding to soffits of stairs is generally in somewhat short lengths and small quantities, it is sometimes billed at *per foot superficial*. Keep boarding in casing to beams separate, describing as such, and billing at *per foot superficial*.

Angles, &c., in Boarding, per foot run.—State if tongued and to the external angles whether moulded or staff-beaded. Measure also at per foot run any scribing to irregular face, housing, &c. *Number* small notchings, also scribings over skirtings, &c., stating whether scribings are over moulded work, and giving the size of the skirting.

Cornices, per foot run.—Give extreme size, girt of moulding, and any other description, and if built up, describe as noted in Chapter VIII. *Note.*—That for each external angle must be added *twice* the projection in addition to the net girt of the room. *Number* mitres, ends, &c., as before described.

Panelled Wall Linings and Dadoes, per foot superficial.—State thickness and description of panelling as described for doors, mentioning the number of panels in height. Include backings, with the description, keeping that plugged to wall separate, or take fixing blocks as *numbers*. Keep work circular on plan separate, stating the radius. It is sometimes advisable in the case of narrow dadoes, where the panelling is somewhat exceptional in arrangement, to bill these at *per foot run*, giving the height and full description.

Angles, &c., per foot run as described to similar items in boarding.

Plinths, per foot run. Where a skirting is fixed on the face of boarding it is wrot both sides, and is then described as a "plinth." Measure this as described for skirting, except, of course, in this case grounds and backings will not be necessary.

Wall panelling and panelled dadoes do not always run down to the floor; in this case the lower edge of panelling is either tongued to the top of the skirting or the skirting is rebated for same. In the former case describe the skirting as grooved and take an item of rebate at *per foot run* to lower edge of panelling. In the latter case describe skirting as rebated. The skirtings here will require grounds and backings as described previously. *Number* mitres, ends, &c., as previously described.

Cappings, &c., of Dadoes, per foot run.—State size, and how moulded, and girt of moulding. Include grounds, with description, or measure separately, and state if plugged, or take fixing blocks as *numbers*. State whether rebated for dado, or if dado tongued to same describe as grooved, and take an item of rebate as described for plinths. *Number* mitres, ends, &c., as described for skirtings. Mouldings planted on face of panelling are measured separately, as described to mouldings on doors, &c.

Pilasters, &c., per foot run.—State size and how fixed, measure separately flutes, giving the width and depth and stating if stopped, and *number* the stops, stating the shape. It is sometimes advisable to number flutes, including the stops, averaging the lengths.

Plinths, cappings, neckings, &c., to pilasters are frequently better *numbered*, giving the size of the mouldings, the full widths on face and returns, the number of returns, and the mitres and ends to each, and state whether housed in or merely planted on.

Fittings and Sundries.

Cupboard fronts, per foot superficial.—Measure over the front, state thickness and description of frame, and also the doors, stating whether single hung or folding, and whether in two or more heights, also describing the panelling of the doors as previously noted under the heading of "Doors," and any other particulars.

Ends and Divisions, per foot superficial.—State thickness, and also whether plain or panelled; if the latter, the description of panelling.

Keep dwarf cupboard fronts separate from remainder, and describe as such.

If doors are hung to slide, it will be found necessary to measure the frame in detail, and also the doors, describing the latter as "sliding." Runners, parting beads, grooves, &c., will also have to be measured at *per foot run*; but, of course, the particular details will depend entirely upon the architect's intention in this case, and as these are sometimes of rather an elaborate description, it is well that this should be clearly understood.

Shelving, per foot superficial.—State thickness

and if wrot one or both sides. Measure wall bearers at *per foot run*, giving size and description, and stating whether plugged. Measure ship lap joints at *per foot run*, and *number* notches, rounded corners, also brackets under shelves.

Movable shelves should be so described, and the movable bearers at ends *numbered*, the vertical bearers, such as "shark's tooth," &c. should be measured at *per foot run*.

Lattice shelving is measured at *per foot superficial*, giving the size of the laths, the distance apart, and the size and spacing of ledges. State whether rough or wrot.

Water-closet Fittings.—Take the girt of the seat and riser by the width, and bill at *per foot superficial*, giving thickness and full description, and include the bearers. Flaps and frame are also measured at *per foot superficial*, describing the flaps as "clamped," "mortice and mitre clamped," or otherwise. Any finish to the edge as rounding, moulding, &c., to be measured at *per foot run*, as are also thumb mouldings. In the latter case give the size, and if tongued on include the grooves. Skirtings to water-closet seats are measured as previously described. *Number* seat holes and holes for handles, &c., stating if the latter are finished with bead or moulding around.

The foregoing description is, of course, for enclosed water-closets, but if for a pedestal closet, number the item complete, making it perfectly clear what is intended, as there is a very great variation, both in character and general detail in these.

Bath Fittings.—Measure the bath top net at *per foot superficial*, and state that the item is "measured net." Measure at *per foot run* the work to edges and *number* the rounded corners, &c. For the enclosure the rules for measuring framings, &c., in Chapter IX., generally will apply. Unless the bath has feet it will be necessary to take an item of cradling as a *number*.

Sinks, per foot superficial generally.—Keep the rim and bottom separate and state how put together, *i.e.*, whether dovetailed or otherwise. Small draw-off sinks to irregular shapes are frequently *numbered* complete. Measure at *per foot run* the legs and bearers, describing as framed and chamfered, &c., as the case may be.

Enclosures to Sinks and Lavatories, per foot superficial.—The notes as to measurement of cupboard fronts, &c., will generally apply to these.

Labours at per foot run.—Grooves, rebates, chamfers, moulded edges (in these keep "stopped" and "cross-grain" separate from the remainder, and in the case of chamfers and mouldings number the stops and give descriptions. Grooves and rebates if of exceptional size, and also chamfers and mouldings, should have the girt noted), housings, scribings, angles, stating the thickness of the material dealt with, and in the case of angles note whether tongued and whether external or internal, and if the former, whether staff-beaded, moulded, or plain. *Note.*—Scribing is not required to be taken next a *new* plain face, such as new plaster, as the work is supposed to be finished to a true face. Take plugging at the end of framing next a brick wall whether plastered or not.

Pipe-casing, per foot run.—State thickness and give full description, and include the grounds, stating if the latter are plugged and if the casing is fixed with brass screws and cups, or otherwise.

Rails, &c., per foot run.—State width and thickness and finish to edges, and how fixed. *Number* returned ends, mitres, &c.

Sundry items billed as numbers.—Notches, small scribings, attendances on water-closets, baths, lavatories, sinks, &c., brackets, draining boards (giving sizes and thicknesses and description of flutings and if stopped, and any other particulars), plate-racks (giving size), dressers (giving sizes and full description and dimensions and thicknesses of detailed portions throughout), and any items that cannot be measured. However, the surveyor must not be tempted to *number* items to save himself trouble at the expense of the contractor having to take off his own quantities for items that should appear in the bills in detail. It is sometimes advisable, however, where detailed measurements do not thoroughly explain the work involved, to *number* the item and to give the detailed dimensions underneath, kept short to enable the contractor to make up the total cost of this particular item before placing the amount in the general money column of the bill.

Staircases.

Treads and Risers, per foot superficial.—Allow beyond the sight width of the treads and risers 1 in. each end for housing, and take this dimension by the width of the tread and the height of the riser added together (making an additional allowance for the nosing). Give thickness of tread and riser, description of nosing, and state whether risers are tongued one or both edges and the number of carriages.

Winders and Risers, per foot superficial, to be measured net and so described in the bill.

Landings, per foot superficial.—These are generally measured to include the framed bearers. Measure nosings to landings at *per foot run*, stating size and thickness, and, if tongued on, state this, and include the groove, keeping that cross grain separate from the other. *Number* mitres, housings, &c., to nosings.

Wall Strings, per foot run.—State size and thickness and whether moulded or otherwise. If moulding elaborate mention girt. State whether plugged to wall and if grooved or rebated for plaster or wall framing. Keep "ramped" portions separate, *numbering* the heading joints. If ramps are very short *number* these, and describe as "extra." *Number* mitres, splayed ends, returned ends, heading joints with skirtings, &c.

Outer Strings, per foot run.—State size and thickness and the *labours* on the string. Take framed and housed ends as *numbers*, stating if "on rake" and the nature of the wood to which they are housed and framed; keep "ramped" and "wreathed" portions separate, or, if short, *number* as described for wall strings. Any cappings, face mouldings, &c., should be measured separately at *per foot run*, keeping "ramped" and "wreathed" portions separate, and *numbering* the ends, &c., as described to the strings.

Newels, per foot run.—Give size, and if merely chamfered or moulded at the angles include labours; *number* shaped caps and pendants, giving sketch if required. If turned, take the newel plain and *number* turnings to "waists," stating size and length of turning, and "caps" and "pendants." *Number* any sunk panels, flutings, moulded cappings, neckings, and any other works that cannot be measured, giving full dimensions and particulars. In the case of very elaborate newels, it is sometimes the better plan to number the item complete, giving a sketch.

Handrails, per foot run.—State size and if moulded or rounded. It is frequently necessary to give a sketch, or to note the girt of the moulding. Keep "ramped" and "wreathed" portions separate, or if very short, *number* these and describe as "extra." *Number* mitres, newel caps, housings, and framings (stating if on rake), ends cut and wedged, &c., and take handrail screw at each joint.

Balusters.—These are generally better *numbered*, giving size aud length, and stating whether "plain," "shaped," or "turned," with full description of the labour, and including the housings, keeping those to raking strings and handrails separate, and mentioning also the woods into which they are housed.

Sundry items as numbers.—Ends of treads and risers housed to strings (stating whether nosings are rounded or moulded), wide ends of winders and risers and narrow ends of ditto housed to strings, notches in treads, &c. to newels, bull-nosed or curtail ends and rounded corners (giving description of nosing, &c., and the girt of the ends or corners.

The framing under stairs being in spandrel shape is frequently kept under the heading of "Staircases."

Hard Woods.

The foregoing modes of measurement have been written as for "deal," but of course the same will apply to "hard woods." These should be kept under the same headings under the different woods as described in the early part of Chapter IX.

Ironmongery.

The Ironmonger's bill, being almost without exception a collection of *numbers*, very little description as to the method of taking ironmongery is needed. It is, however, a good plan to keep under various headings, *e.g.*, "Ironmongery and Fixing in Deal," "Ironmongery and Fixing in Hard Wood," "Brasswork and Fixing in Deal," and "Brasswork and Fixing in Hard Wood," the brasswork being fixed with brass screws.—Note in the heading that the fixing includes screws.

As the quality and description of the items of ironmongery is so varied it is absolutely necessary in most of the items to give the "p.c." or "l.p.," or the maker's name and number in the catalogue, and all particulars necessary, to leave no element of doubt as to what the items refer. It is advisable in the case of some of the items—some makes of weather bars, for instance—to obtain from the makers particulars as to the works necessary to take for these items. This will apply to various special manufactures.

OBITUARY.

MR. WILLIAM GALLOWAY.—Mr. William Galloway, who has been employed for the last twelve or thirteen years in excavating the foundations of the old cathedral at Whithorn, died on the 11th inst. after a short illness. Mr. Galloway, who was about sixty-five years of age, was born in Edinburgh, was educated at the High School, and afterwards apprenticed to Mr. Patrick Wilson, architect, Edinburgh. He early took to painting, and also turned his mind to ecclesiastical architecture. But old monuments of all kinds had a strong attraction for him, and his skill in deciphering characters on ancient stones was very great and exact. Mr. Galloway was a poet of some note, and he was an author of several volumes.—*Scotsman.*

MR. A. P. COTTERILL.—Mr. A. P. Cotterill, a builder of Crewe, for many years member of the Town Council, and latterly an alderman for the borough, died on the 16th inst.

GENERAL BUILDING NEWS.

SYNAGOGUE AND CLASS-ROOMS, SOUTH HACKNEY.—These new buildings occupy a frontage of about 93 ft. to Devonshire-road, Mare-street, and comprise a lower ground floor, consisting of nine class-rooms, and an assembly hall, accommodating 400 children simultaneously, and on the same floor is lavatory and cloak-room accommodation for boys and girls. This floor is fitted with movable partitions, which, when put aside, convert the entire floor into a great hall for prize distributions and overflow services. The lower ground floor has two stone staircases leading direct to the street. The upper ground floor is the main floor of the synagogue, and is approached by a separate entrance from the street. It contains accommodation for 340 males, the whole of the seats are placed crossways, and the ark, pulpit, and reading platform are grouped together at the eastern end of the building; there is also, on this level, lavatory accommodation for gentlemen, and a robing-room for the ministers. Two self-enclosed staircases lead direct from the street to the gallery, which contains accommodation for 210 ladies, and two sets of cloak-rooms. The interior is finished in pure white, the joinery being stained imitation oak. The exterior has been built in red bricks, with artificial stone dressings. The total cost, including the freehold site, has been about 8,000*l.* The contractors for the whole of the works are Messrs. Brown, Son, & Blomfield; the gas work has been carried out by Messrs. Verity; and the heating by Messrs. Wontner-Smith, Gray, & Co. The artificial stone was prepared by Mr. Bickley, and the constructional ironwork and steelwork by Messrs. Drew-Bear & Co. The architect is Mr. Delissa Joseph, of Basinghall-street, E.C.

NEW CHURCH, MAIDSTONE.—The new church of St. Luke's, situated near the old building in Foley-street, was consecrated recently by the Bishop of Dover and Bishop-Designate of Wakefield. The length of the nave is 75 ft., the breadth 52 ft., and the height 40 ft., the roof being of pitch pine. The chancel is 29 ft. long. The seating accommodation is sufficient for 800 persons. In the design the architect has sought to embody the principle upon which all the great styles of architecture have been founded and developed—namely, that every building, while exhibiting a knowledge of that which has preceded it, should not be merely a collection of archæological features tastefully combined, but that every part should indicate thought as to its purpose, construction, and artistic effect, and that the whole should, at the same time, possess unity and consistency. Although Gothic in general character, the church is not distinctively Early English, Decorated, or Perpendicular, nor can it be said to be a combination of these styles. The design of many of its features is novel, such as the coupled shafts and bold segmental arches and mouldings of the nave arcade, the capitals of the chancel arch, the treatment of the east window of the chancel and the west doorways. The fittings of the choir also exhibit the same independence of treatment. The suppression of the customary clerestory for the sake of ensuring good artistic results and preventing down draughts in the nave has produced a low roof, and an unbroken line from ridge to angle wall. The absence of the clerestory windows, and the consequent deficiency of light in the nave, called for an unusually large west window, and as there was little weight above its great arch, a more flowing treatment of its tracery was considered legitimate. On the other hand, the setting of the side windows is more perpendicular, as giving all the support possible to the weighty roof. The stone of the chancel steps was

obtained from the Forest of Dean. At present the old organ will be used. The chancel floor is of mosaic. The choir stalls and prayer desks are of open carved work, and the pulpit from the old church has been cleaned and renovated. The floor of the nave is of wood blocks and the seats are of polished Columbian pine. The old stone font is being utilised for the new church, and the floor of the baptistry is covered with mosaics. The building will be heated with hot water. The means at the disposal of the committee did not allow a tower or spire, but a small bell turret has been provided. The bell was specially cast for the church by Messrs. Warner, London. The turret is surmounted by a copper dove (substituted for the originally designed figure of St. Luke) symbolising the Holy Spirit descending on the congregation. Local ragstone has been used for the external facings; the windows, weatherings, copings, and other dressings, as well as all the internal stonework, being of Monks Park stone. The roof is covered with Broseley tiles, and the bell turret with oak shingles. Messrs. Wallace & Sons, of Maidstone, were the contractors; the carving of all the capitals and the bosses of the chancel arch has been executed by Mr. Aumonier, and the remainder of the stonework by Mr. Gilbert Seale; the choir stalls and clergy seats by Messrs. White, Allom & Co., the glass by Messrs. A. Moore & Co., the reredos by Messrs. Jones & Willis, the gasfittings and communion rail standards by Mr. Bainbridge Reynolds, and the lectern modelled and carved by Mr. Turner (all of London). Mr. Ireson acted as clerk of the works. The whole, including the fittings and furniture, was designed by the architect, Mr. W. Howard Seth-Smith, of London.

BUSINESS PREMISES, GLASGOW. — Cambridge-buildings, the new block now in course of erection in Sauchiehall-street, will have a frontage to Sauchiehall-street of 94 ft. 6 in., and a depth of nearly the same. The buildings are five stories in height, with a basement floor, the stone used being Locharbriggs red freestone, enriched in parts with Peterhead granite. The entire buildings will be occupied by Messrs. Thomas Muirhead & Co., warehousemen. The work is being carried on from the designs of Mr. James Thomson, architect, Glasgow.

ALTERATIONS, ST. JOHN'S WOOD CHAPEL.—Considerable alterations have been carried out in the east end of this church in order to afford more accommodation to the choir, and to widen the approach to the sacrarium; for which purpose the high pulpit has been moved more forward towards the west, involving the removal of some of the seats. The smaller pulpit has been cleared away, and part of it utilised as a reading desk and a credence table. Formerly the choir seats were on a level with the floor of the church, but they are now raised upon platforms. The organ, which was formerly in the west gallery, has been remodelled and brought down to the rear of the choir, under the north gallery. These alterations have been carried out by Mr. Forsyth, of Finchley-road, from plans prepared by Messrs. Forsyth & Maule, architects, of Great Marlborough-street.

MEMORIAL CHAPEL, WEMYSS CASTLE.—A chapel was dedicated at Wemyss Castle on the 18th inst. to the memory of Mrs. Erskine Wemyss, mother of the present laird. The chapel has been constructed out of an old vaulted apartment in the basement of the castle. The walls have been lined throughout with stone arcading. At the end a deep recess has been formed for the altar. The arch over this recess is surmounted by a large rood cross. Behind the altar is a gilded frame of elaborate design, which is to contain a picture of the Nativity, painted by Mr. Louis Davies, of Pinner. The crucifix, which stands on the retable behind the altar, is an example of old Spanish workmanship, the base and cross being of worked tortoise-shell, while the figure is made of carved and burnished brass. The monument built into the north wall is richly carved, and surmounted by a panel showing a boldly-carved swan supporting a shield, on which is carved the lion-rampant — being the crest of the family. Here will be placed a recumbent effigy of the late Mrs. Wemyss, which is being executed by the Princess Louise. Over the spot where the recumbent figure will repose there is a scroll, on which in quaint characters is carved—"Sleep after toyle; port after stormie seas; ease after warre; death after life does greatly please." An organ will occupy the wall facing the altar. The windows are to be filled in with stained glass illustrating the life of Saint Margaret of Scotland. The chapel is paved with stone throughout, and several old sculptured stones have been let into the pavement. The whole stonework of the Castle is from the quarries on the estate. In addition to the public entrance from the colonnade, a new staircase has been constructed leading down from the large saloon of the Castle to the chapel. The steps of this staircase are constructed of solid blocks of elm, grown on the estate. Immediately within the entrance to the chapel the dedication plate, of solid silver, with embossed letters, has been let into the wall. The whole of the work has been carried out from the designs of Mr. R. S. Lorimer, architect, Edinburgh. —*Scotsman.*

PRIMITIVE METHODIST CHAPEL, DUNSTON, NEAR NEWCASTLE.—The foundation-stone has just been laid of a new chapel for the Primitive Methodists. The site is in Ravensworth-road. The building is of brick with stone dressings, and has been designed in the Early Gothic style by Messrs. Davidson & Bendle, architects, Newcastle and South Shields. Mr. John Ross, Bensham, is the builder. For the present the edifice is to consist of two apartments, a two-aisled chapel and a vestry—the two can be thrown into one when necessary—giving seating for 200 people.

BAPTIST CHAPEL, IPSWICH.—The Burlington Baptist Chapel, after having been closed for several weeks, has been re-opened. A considerable sum has been expended upon the fabric itself. The interior has been thoroughly cleansed, and the walls distempered, and stencilled. All the windows have been filled in with cathedral stained glass. The organ has also been renovated, and considerably enlarged by Messrs. Bishop & Son. The work of restoring the chapel has been carried out by Messrs. Charles Stearn & Co., Messrs. Eade & Johns being the architects.

CONGREGATIONAL CHURCH, WHITTINGTON, SALOP.—The memorial stones have just been laid of a new church at Whittington. The style of the building will be Gothic. At the rear of the church there will be a vestry, a heating chamber, and a boiler-room, whilst room has been reserved for the erection in the future of a schoolroom. The internal woodwork will be of yellow pine, and seating accommodation will be provided for some 180 persons. The architect is Mr. Williams, of Liverpool, and the contractor Mr. W. Griffiths, of Ellesmere and Knockin.

BAPTIST CHAPEL, KING'S HEATH, WORCESTERSHIRE.—The foundation-stone of a new Baptist chapel for King's Heath was laid on the 15th inst. The building will be erected in the Alcester-road, and the total cost is estimated to be about 5,200*l.* The building will be 72 ft. long by 43 ft. wide, and will have transepts and a chancel. Accommodation will be provided for 550 persons. At the rear of the site of the church and vestries, a school costing over 1,400*l.* has already been erected, and is temporarily used as a church. The large hall will seat 450 persons. Mr. A. Harrison is the architect, and Mr. Moffat the builder.

WESLEYAN METHODIST CHAPEL, NEAR RAMSGATE.—A new chapel for Wesleyan Methodists was laid at St. Lawrence recently. The building in course of erection is situated just opposite the old chapel in Chapel-road. Mr. W. W. Martin is the contractor carrying out the work. The building will consist of a nave, with chancel, organ-chamber, and two vestries. The front will have an outside porch. The roof is partially open with arched ribs and pitch pine ceiling. The pulpit and pews are also of pitch pine. The chapel is 50 ft. long by 31 ft. 6 in. wide inside, and will seat 250 adults, or a mixed congregation of 335 persons. Mr. J. Wills, of London and Derby, is the architect.

CONGREGATIONAL CHURCH, OTLEY, YORKSHIRE.—The foundation stone of a new Congregational Church was laid at Otley on the 15th inst. The new building will have a spire, the apex of which will be 94 ft. above the ground. The church will contain sitting accommodation for 542 worshippers. The cost of the church when completed will be about 6,500*l.*, exclusive of boundary walls. The architects are Messrs. T. H. & F. Healey, of Bradford.

DIAMOND JUBILEE ROOM, HOLTON, SOMERSETSHIRE —A public room has just been erected in this village as a memorial of the Diamond Jubilee. The structure is of local stone, with Ham Hill stone dressings. The building consists of a room 18 ft. by 32 ft., and an ante-room. The architect was Mr. T. Hudson, of Wincanton and Gillingham, and Mr. Noah Read, of Buckhorn Weston, was the builder.

BUILDING IN ABERDEEN.—For the last three years the building trade in Aberdeen has been unusually brisk, and in ordinary circumstances the outlook might be considered very favourable. Many of the large buildings that are now in progress will not be finished until after the winter has come and gone, and there are other large buildings in prospect which are expected to be placed on the market soon; but the unfortunate dispute in the engineering trade has reached us, and there is no saying how far it may affect the future prosperity of the building department of the granite trade. The prosperity of the city will no doubt suffer by the stoppage of this important industry, and should the lock-out continue for any length of time it will probably be followed by a depression in the house-building department.—*Aberdeen Journal.*

NEW CONGREGATIONAL CHURCH, SCARBOROUGH.—On the 10th inst. Mr. J. Compton Rickett, M.P., laid the foundation stone of the new Congregational Church for Scarborough, to be known as the Manor-road Congregational Church. The church, which is situate at the corner of Manor-road and Gordon-street, will consist of a nave, two aisles, a transept and chancel. In addition to the church proper there are four rooms, these being a church parlour, a vestry or class-room, a minister's vestry, and a choir vestry. Sufficient ground has been obtained for the erection of school-rooms, class-rooms, a minister's house, and a caretaker's residence. For the present, however, it is intended to erect the church only. The accommodation is for 350 persons, but provision is made so that 500 could be seated by means of the addition of galleries, and one of the class-rooms to the body of the edifice. The church is to be built in the Gothic style. At the principal corner (the south-west) is placed a tower. Mr. J. Caleb Petch is the architect.

PARISH CHURCH, ALRESFORD, HANTS. — Sir Arthur Bromfield reports that, on further examination of this church, he finds that the posts supporting the nave roof are in an extremely unsound state. One was split from top to bottom, and a collapse with a part of the roof falling, might have occurred at any moment. The unsoundness of the posts was not visible, as they were cased. If the posts were removed, it would be necessary to disturb a large portion of the roof timber, and as those are shaky and twisted, it would be almost impossible to replace them. Under those circumstances, he recommends that "columns and arcades, with clerestory windows, in stone of a similar character to those existing before the fire, should replace the existing wooden construction." The estimated cost of an entirely new roof to the nave in oak, with nave arcade and columns, and clerestory windows in stone, is approximately 1,000*l.* beyond the present contract. A discovery of an Early English window has been made.

NEW CHURCH OF ST. AMBROSE, EDGBASTON, BIRMINGHAM.—The foundation-stone of the new Church of St. Ambrose, Pershore-road, has just been laid by the Misses Stokes. The designs, prepared by Mr. J. A. Chatwin, architect, show a church of red brick, with terra-cotta dressings upon the outside, and Bath stone dressings in the interior. The building will consist of a nave 90 ft. long, with a chancel; north and south aisles, shallow north and south transepts, a choir vestry with organ-chamber over, clergy vestry, and an apsidal projection at the west end forming a baptistry. There is also to be a tower and spire at the north-west corner, and a south porch; but only a portion of the tower will be erected in the first instance. The spire, when completed, is also intended to be of terra-cotta, and will rise to a height of about 150 ft. The style is Gothic. The floor of the church under the seats will be of wood. The church will accommodate 708 adults. The walls will be faced with bricks from the Coalville Brick Company, Leicestershire, and the terra-cotta will be supplied by Messrs. King & Son, of Cradley. Messrs. Collins & Godfrey, of Tewkesbury, are the builders. The cost will be between 6,000*l.* and 7,000*l.*

RESTORATION OF ST. ANDREW'S CHURCH, BOOTHBY PAGNELL.—In our account of the restoration of this church, page 224 *ante*, we omitted to mention that Mr. N. Hitch, of London, carried out the order for the triptych, and also executed the statues of the Virgin and St. Andrew. The brass lectern was supplied by Messrs. J. W. Singer & Sons, of Frome, and the chancel stalls by Mr. A. Robinson, of London.

TECHNICAL SCHOOL, PRESTON.—The new technical school in Corporation-street, Preston, which has been built on a site given by the Corporation, was opened by the Countess of Derby on the 16th inst. It has been built from the designs of Messrs. Cheers, Aspinall, & Smith, and will cost, exclusive of furnishing, probably about 15,000*l.* It comprises a weaving shed, 84 ft. by 64 ft., a large spinning school, 64 ft. by 40 ft., a textile museum, a lecture hall, 50 ft. by 40 ft., class-rooms, and provision for teaching the staple trades of the district. Special rooms are set apart for classes in mechanics and engineering, machine and building construction, carpentry and joinery, plumbing, &c. Steps are at present being taken to equip the building with machinery and all the most modern appliances for teaching the various industrial processes. The building is Gothic in style; it consists of three stories, and has a frontage of 150 ft. to Corporation-street. It is constructed of Accrington red brick, with ornamental stone dressings. The school is fitted throughout with electric light and hot-water heating apparatus. Mr. F. J. Pye has acted as clerk of the works. The contract for the building was let to the late Mr. John Walmsley, Preston, and since his death the work has been carried out by his trustees, under the supervision of Mr. James Smith, foreman of the works. The other contracts were let as follows:—Ironwork, Messrs. Stephenson & Co., Preston; stonework, Messrs. D. Tullis & Son, Preston; hot water supply, Mr. J. Metcalf, Preston; mosaic tiling, Mr. Macfarlane, Leeds; slating, Mr. J. Pradshaw, Preston; plaster work, Mr. William Crook, Preston; fans, the Blackman Ventilating Company; lead lights, Messrs. Seward & Co., Lancaster; glazing, Messrs. Heywood, Huddersfield; cabinet work, Messrs. Bell & Coupland, Preston.

ALTERATIONS, &C., FERRYHILL FREE CHURCH, ABERDEEN.—For some weeks past Ferryhill Free Church has been in the hands of tradesmen, undergoing various alterations. The improvements have been carried out under the superintendence of Messrs. D. and J. R. M'Millan, architects; the contractors being:—For the joiner work, Messrs. Garvie & Sons; painter and glazier work, John Whyte; ventilating arrangements, J. F. Anderson.

PROPOSED ENLARGEMENT OF ST. MARY'S CHURCH, BLYTH.—An effort is being made for funds for the purpose of the enlargement of this church. The Diocesan Architect, Mr. W. S. Hicks, has submitted plans which embrace a scheme of gradual extension of the church, eventually affording accommodation for 1,000 people. The first portion of the work to be taken in hand will include the

extension of the chancel, the building of a north aisle, with organ chamber and vestry.

NEW CHAPEL, HOLT, NEAR SALISBURY.—A new chapel of ease has just been dedicated at Holt Heath. The building was designed by Mr. W. Jeffery Hopkins, architect, of Worcester, and is now dedicated to St. John the Evangelist. Mr. Meader, of Wimborne, was the contractor.

ALMSHOUSES, LOUGHTON, BUCKS.—The memorial stones were laid recently at Loughton of four cottages which are being built in commemoration of the Queen's Diamond Jubilee. The contract was given to Mr. Richard Bird, of Loughton. Mr. Hailey, of Stony Stratford, is the architect, and the cottages will be in red brick, with stone facings.

SCHOOLS, EDGMOND, SALOP.—The new schools at Edgmond were opened recently. Accommodation has been provided for 100 boys and girls in a mixed school, and for sixty-one infants in a separate portion, with entrances, hat and coat rooms, lavatories, &c., attached. In the rear are enclosed playgrounds, with the usual out-offices, drainage, &c. The buildings are carried out in Lilleshall bricks with stone and blue brick dressings. The works have been well carried out by Mr. Edwin Whittingham, of Newport, from the designs and superintendence of Messrs. J. R. Veall & Son, architects, Wolverhampton.

PUBLIC SCHOOL, CLACKMANNAN.—A new public school was opened on the 10th inst. at Clackmannan, by Lord Balfour, of Burleigh. The school, which has been erected by the Clackmannan School Board, is a building two stories in height, with accommodation for 400 children in eight class-rooms, four on the ground floor and four on the upper floor. There are separate entrances and also separate staircases for boys and girls, and near the entrances are provided private rooms for the teachers. The buildings are of white stone, and the roofs are covered with Aberfoyle slates. The plans were prepared by Messrs. Thomas Frame & Son, architects, Alloa.

CONGREGATIONAL CHURCH, RUGBY AVENUE, BELFAST.—The new church for the congregation formerly worshipping in the Wellington-place Evangelical Union Church, Belfast, was opened on the 12th inst. The frontage is 57 ft. long, and extends 160 ft. backwards towards University Avenue. The front of the church is flanked by a square tower and copper spire, rising to a height of 120 ft. The dimensions of the church are 70 ft. by 40 ft. Two large doorways give access to the vestibule, on one side of which is the staircase to the end gallery. A large Tudor window occupies the centre of the main front gable, which terminates in a cut-stone finial. Buttresses are placed at the sides of the church, and the walls between them are pierced with double-light Tudor windows. At the transepts the windows rise to a higher level, and are surmounted by gables. Red brick walling, with red sandstone dressings from the Aspatria Quarries, has been employed throughout. All the windows are filled with cathedral glass of varied tint in lead quarries. A feature has been made of the pulpit, which is in American walnut and pitch pine, with wrought-iron balusters, by Messrs. Riddel & Co. The buildings at the rear of the church comprise two large halls, the upper one 30 ft. square; rooms for minister, committee, and ladies, with offices attached, occupying about 46 ft. by 40 ft. From an enclosed yard access is obtained to the heating chamber. The ground is enclosed with iron railing and gates. Mr. T. Gray has supplied the heating apparatus and the gasfitting, and the copper spire has been done by Messrs. Ewart, of London. Mr. Robert Corry was the contractor for the work. The architects were Messrs. Young & Mackenzie.

GLASGOW ART GALLERIES, CONCERT HALL, AND MUSEUM.—This building, which is the outcome of the International Exhibition held in Glasgow nine years ago, was opened on the 10th inst. by the Duke of York. Messrs. J. W. Simpson & Milner Allen, London, were the architects, and the cost of the building has been about 200,000*l*. The galleries will be oblong and four-sided. They extend east and west parallel with Sandyford-street, and the principal elevation fronts the Park or the north. The length of the building will be 400 ft. and the depth 200 ft., and the style is a free treatment of the Jacobean. Including the basement story, in which the School of Art will be situated, the block will have three stories. Both at the main entrance in the north side and the Sandyford-street entrance, there will be vestibules, and from these there will be access into the central hall or into the galleries, which are to go all round the building on the two principal flats. On either side of the central hall there is to be a large court, and an arcaded gallery or balcony and promenade will extend round the hall. Two hydraulic lifts will rise to the various galleries. The refreshment department will occupy a central position. The buildings are of brick, the exterior being built of red sandstone from the Locharbriggs Quarries, near Dumfries, while some parts of the interior are being faced with white Giffnock stone. The exterior of the building is being treated as an astylar composition on severely Classical lines, but with free Renaissance in detail. Regarding the different apartments, it may be stated that the central hall will cover an area of from 10,000 to 12,000 square feet. There will be six galleries for art exhibits, two of them 94 ft. 7 in. by 25 ft., and the remainder 93 ft. by 28 ft.; four pavilion galleries of 35 ft. square, and four cabinet galleries 14 ft. square. As to the museum, the east and west courts will be identical in size—105 ft. by 64 ft. The west gallery and the east gallery will be 94 ft. 6 in. by 37 ft., and the other galleries, four in number, will be 93 ft. by 28 ft. There will be four pavilions of 35 ft. square, and galleries will run round the east and west courts. As regards the School of Art, the elementary room will be 72 ft. 6 in. by 36 ft.; the designing room, 35 ft. by 20 ft.; the antique room, 54 ft. 6 in. by 36 ft.; the painting room, 36 ft. by 36 ft.; and the modelling room and clay store, 35 ft. by 20 ft. Masters' rooms and cloak-rooms are also included. Provision is likewise made for four offices, a library, a house of five rooms and kitchen for the resident attendant, manager's room, service rooms, larders, store rooms, sculleries, and pantries. The outer walls of the building vary in thickness from 3 ft. to 4 ft.

MISCELLANEOUS.

ST. PAUL'S, LONDON.—A proposal has been made for celebrating the approaching anniversary of the opening of the Cathedral for divine worship. December 2, 1697, was appointed as a day of national thanksgiving for the Peace of Ryswick, and on that day Bishop Compton celebrated service for the first time in the choir. But it was not until 1710 that the building was declared to be completed by 9 Anne, c. 17; the balustrade being added, against Wren's wishes, in 1717. On June 21, 1675, Wren (who until 1711 had Hawksmoor for assistant) and Thomas Strong, master mason and contractor, laid the first stone at the choir's south-east corner, the work proceeding from the west end. To Strong, who died in 1681, succeeded his brother Edward, whose son, Edward, began the lantern in 1706; the father and son laid the last stone of the lantern in October, 1708 (or 1710), in the presence of either Wren or his son. Edward Strong, the elder, died February 8, 1723, aged 71, at his house "New Barns," Sopwell, St. Alban's; the epitaph on his monument at St. Peter's, in that city, will be found in the *Builder*, vol. xxii., page 700. Richard Jennings, appointed 1707 as master carpenter on the work, and superseded in favour of John James, of Greenwich, was buried in the parish churchyard of Henley-on-Thames. We may add that the old railing around the church and Queen Anne's statue was cast, 1714, in the Gloucester forge, Lamberhurst, and that the posts around the west front (*circa* 1874) are of Shap Fell granite, and lathe-turned. Bird's statue of Anne was lately removed to Beaulieu, near Hastings; the ball and cross were recast, at Harefield, in 1821, during Cockerell's surveyorship. Father Smith's organ, enlarged by Cranz and by Bishop, was removed, with the screen, in 1860: it was divided and reconstructed by Mr. Henry Willis, 1871, from Sir John Stainer's designs.

PROPOSED STREET IMPROVEMENTS, CHESTERFIELD.—On the 15th inst. Colonel J. F. Marsh, R.E., held an inquiry at the Municipal Hall, Chesterfield, in regard to the application of the Town Council for permission to borrow 10,005*l*. for purposes of street improvement. The Town Clerk, Mr. J. Middleton, informed the Inspector that, with the exception of High-street and Burlington-street, which were laid with wood, all the streets were now made and maintained in the old-fashioned way and out of the current rates. In these streets they had all varieties of make—tar macadam, granite, and blocks. Two new railways had come into the town since the extension of the borough. In West Bars they had the Lancashire, Derbyshire, and East Coast Railway, and at the time that company was promoted power was obtained to widen the whole length of West Bars to 40 ft., and in order to carry out that scheme it would be necessary to deal with the tramway which ran along that thoroughfare, while the street needed reconstruction throughout. It had also been deemed advisable to widen Derby-road, and it would probably be necessary to reconstruct that street. It was also proposed to widen the bridge there from 19 ft. to 36 ft., at an estimated cost of 1,000*l*.

DUNSTANBURGH CASTLE.—Steps are to be taken by the trustees of the Dunstanburgh estate to protect the ruins of Dunstanburgh Castle as far as possible from the disintegrating influence of the weather. It is not intended to do anything in the nature of conjectural restoration, but simply to take the necessary measures to keep the weather out of the walls, and to thoroughly examine the more exposed parts of the ancient structure. The highest parts of the noble old barbican and of the Lilburn Tower are landmarks which it would be a thousand pities to suffer to fall, and while there may be two opinions as to the desirability of wholesale restoration of our ancient historical buildings, there can be but one as to the wisdom of exercising care and attention for the preservation of such portions of the fabric as are left to us. The work will be under the supervision of Mr. George Reavell, jun., architect, Alnwick.—*Berwick Advertiser.*

ELECTRIC SUPPLY, LIVERPOOL.—The City Electrical Engineer of Liverpool (Mr. A. B. Holmes) has prepared for the Lighting Committee of the City Council a report dealing with extensions of generating stations and plant necessary to meet the demand for electrical energy during next year. He points out that the Corporation now supplies electricity for 63,000 sixteen-candle power lamps. In addition, the favourable rates offered by the committee for power purposes are developing a demand for hoists and for motors for use in printing and other trades, and experience in other places indicates that a very material increase may be anticipated in this branch of the business. The area of supply comprised in the Liverpool Electric Lighting Order of 1896 includes the whole of the extended city, a district about seven and a half miles long and five miles wide. It is not unreasonable to assume that this area may ultimately require the equivalent of 250,000 to 300,000 sixteen-candle power incandescent lamps, or 25,000 horse-power for lighting, and 5,000 horse-power for motors and other purposes. In addition to this the tramways may ultimately require at least 10,000 horse-power. For this purpose the Engineer assumes that the power required at a not very distant period for the generation of electrical energy may be estimated at 40,000 horse-power. The Paradise-street and Oldham-place stations are very favourably located for the supply of energy for lighting in the most important portion of the city, and when completed will be capable of supplying about 10,000 horse-power for this purpose, with due regard to economy of working. The Highfield-street and Lark-lane stations will ultimately be used as distributing stations only. In conclusion, Mr. Holmes considers that the future demand for electrical energy should be provided for in the following way:—1. That sites should be secured preferably at Pumpfields and Edge Hill for two generating stations, each with sufficient space to contain plant of 15,000 horse-power, and designed for construction in sections as the demand for electrical energy increases. 2. That the system of generation and distribution should be direct current not exceeding 550 volts pressure, except for the outlying districts. 3. That the engines should be compound or triple-expansion, with condensing apparatus, each capable of developing 1,000 horse-power at most economical load.

LECTERN, PARISH CHURCH, BISHOP'S WALTHAM.—The new lectern presented to the parish church, Bishop's Waltham, has now been placed in the church. The lectern, which is of oak to match the choir stalls, &c., has a double book board, at the ends of which are carved the Tudor Rose and the arms of the present Bishop of Winchester. The shaft is of cylindrical shape, standing on an octagonal base. The lectern is the work of Mr. Chas. Churcher, of Bishop's Waltham, from designs by Mr. T. G. Jackson, R.A.

MEMORIAL FOUNTAIN, LOCHGILPHEAD, ARGYLL.—The erection was completed on the 10th inst. of a fountain which has been put up in the square in memory of the late Dr. A. R. Fraser. The fountain, which is of red freestone on a concrete base, measures 7 ft. 6 in. by 6 ft., and stands 10 ft. high, and is the work of Messrs. Muir & Co., sculptors, Kilmarnock. The fountain is from a design by Mr. William Fraser, architect, Glasgow.

CLOCK TOWER, EXETER.—The new clock tower to be erected on the site of the obelisk at the end of Queen-street, Exeter, is, says the *Western Morning News*, not to be, as was generally supposed, a Jubilee memorial, but will commemorate the work done by the late Mr. Miles on behalf of dumb animals. The original intention, it is believed, was to have a drinking fountain erected; but the idea of combining with it a clock tower crept in, and all the designs sent in were drawn upon this principle. The assessor's award was given in favour of Mr. Greenslade, who designed the Volunteer memorial, but Mrs. Miles decided to have the memorial constructed in accordance with the plans of Mr. Andrews, of Exeter. The stone work is now being busily prepared, but it is not probable that the work of erecting the tower will commence before the spring. The design, which is Renaissance, is to be carried out in Chudleigh limestone and red Corsehill. The lower portion of the tower is essentially a fountain, square in plan, with angle and flying buttresses. The four flying buttresses, which are composed of four clustered columns of Chudleigh limestone, with bases of Corsehill, form also standards for lamps, and will be surmounted by wrought-iron frames and electric lamps. These buttresses are connected to the main building by small arches and carved trusses, above which are small cornices and carved pediments, which support carved groups of horses. There are three horses in each group, struggling with six serpents, suggested by the crest of the donor. On the north side will be fixed the existing cattle-trough, and on the south another large drinking-trough for cattle, executed in granite with carved and moulded fronts. On the east is placed the fountain for wayfarers, which is also of granite, and on the west side is the door for access to the tower. Above the troughs on three sides are moulded recesses corresponding with the opening on the fourth for the door, with hood moulds, key stones, and cornices over, filled in with carving to the margin of the bronze commemoration tablets, two of which terminate on bronze ejects to supply water to the trough and fountain, that to the new cattle trough being in the form of two bulls contending for the water issuing from the eject pipe. The clock-chamber is surmounted by an octagonal cupola, with circular-headed openings in each face. Herein will be fixed the bell upon which the clock strikes, and the whole will terminate with a wrought-iron and copper vane.

SANITARY AND ENGINEERING NEWS.

NEW FISHING HARBOUR, ABERDEEN.—In order to alleviate the pressure at Albert Basin, where Aberdeen Fish Market is situated, the Aberdeen Harbour Commissioners have constructed a new fishing harbour at Torry, on the south side of the River Dee and near its mouth. The works have been executed from designs by, and under the superintendence of, Mr. R. Gordon Nicol, C.E., Harbour Engineer, all the operations having been carried out by the Commissioners' own workmen. The harbour is recessed back into the shore clear of river floods and ice, and is protected on the east from the swell coming up the navigation channel from the sea by a jetty projecting at right angles to the bank 60 ft. into the river. The west wharf extends from the shore into the river a distance of 240 ft. and forms a covering or protecting arm to the harbour basin from the upland waters. The structure is built of pitch pine timber throughout. The total quayage is about 900 lineal feet, and the water area about 1½ acres. The total estimated cost is about 8,200*l.*

PUBLIC WORKS, CLACTON-ON-SEA.—Colonel J. T. Marsh, R.E., held an inquiry at the Town Hall, Clacton, recently, with reference to the Urban District Council's application for sanction to borrow 450*l.* for the provision of shelters on the sea front; 2,800*l.* for the purpose of a scheme for using sea water; and 1,250*l.* for the provision of a town yard. Referring to the provision of three shelters on the greensward, the Clerk (Mr. A. R. Chamberlayne) explained that owing to the extreme urgency of the shelters being erected before the close of the present season, the Council were forced to anticipate the sanction of the Local Government Board to the borrowing of the money.—The Inspector remarked that there was some risk attached to the proceeding.—The Clerk said that land in Clacton was going up in value so rapidly that, had the Council been obliged to obtain the Local Government Board's sanction before completing the purchase they would never have got the land. The trustees would not have accepted a provisional purchase.

THE NEW NORTH BRIDGE, EDINBURGH.—The new North Bridge was opened recently by Lord Provost M'Donald and the Magistrates and Council. The new bridge replaces the old North Bridge, which, begun in 1763, was opened in 1772, having taken nine years to build. Under the present contract, the old bridge has been renewed and the new bridge erected in about two and a half years. The new bridge is built under an Act of Parliament obtained in 1894, which also authorised the widening of North Bridge-street—an improvement now also in progress. Constructed of iron girders resting on stone piers and abutments, the new bridge consists of three spans of 175 ft. each. The width between the parapets of the new bridge is 75 ft., as compared with 54 ft. of the old bridge as altered more than twenty years ago. Each span is formed of six steel arched ribs, each 175 ft. from pier to pier, with a 20 ft. rise at the centre of the arch. They are set into the masonry of the abutments in cast iron springers, each weighing 12 tons. The holding-down bolts are 3 in. in diameter. Each rib is 4 ft. in depth by 1 ft. 9 in. in breadth, and it weighs about 40 tons. They were built at the Glasgow works of Sir William Arrol, Limited; were milled to suit the radius; and were delivered in 9-ton "lifts" or segments. On the top of these "booms" are fixed vertical posts, which carry longitudinal girders, and on these again are fixed cross girders, which carry the brick arching forming the roadway. The whole is braced diagonally and horizontally by lattice girders, &c. In the bridge there is about 2,000 tons of chilled steel and about 500 tons of cast iron work, which is chiefly of an ornamental nature. The spandrels of the great spans, for example, are filled in with an arcading graduated in height, surmounted by a frieze broken up by carved corbels, and carrying a moulded festoon of flowers and fruit. At each end of the large spans is an expansion joint, which has a play of 1½ in. so as to make due allowance for expansion and contraction caused by the summer and winter temperature. In taking down the old bridge nothing of great interest was found. The only curious objects embedded in the masonry were an old pewter jug, now in the Antiquarian Museum, and several old moulded headstones and carved stones, as if from an ancient church. The abutments at the south and north ends of the bridge rest on solid rock. The two large piers are built on concrete foundations, laid, the south pier 40 ft. below the rail level, and the north pier 35 ft. below ground. Each of these piers is 100 ft. long, measuring from east to west, and 22 ft. in thickness. They are hearted with brick laid on cement, and faced with grey sandstone ashlar. In the construction of the bridge there has been used by Messrs. Beattie 100,000 cubic feet of ashlar, equal to 8,333 tons; nearly 3,000,000 bricks, and 10,000 cubic yards, or about 800 tons, of concrete. In addition to this there were 500,000 of blue bricks required for the arching which carries the roadway. From the spring of the arches the piers are carried up above the iron parapet of the bridge with ornamental panelled and moulded faces, and below the top moulding is a carved ornament. On the top of the arched brick asphalt has been spread, and on that are placed the granite blocks of the roadway. The cable rails have been laid, and on each side of the roadway of the bridge a subway for pipes has been constructed, about 12 ft. by 2 ft. in depth, with manhole entrances at each pier. The engineers of the bridge were Messrs. Cunningham, Blyth, & Westland, C.E., Edinburgh; the City Superintendent, Mr. Robert Morham, designed the elevations; the contractors were Sir William Arrol & Co., Limited, Glasgow, with Messrs. William Beattie & Sons, Edinburgh, sub-contractors for the mason work. The cost is 90,000*l.*

LOOE WATER SUPPLY, CORNWALL.—Colonel A. G. Durnford, R.E., Local Government Board Inspector, held an inquiry at the Town Hall, East Looe, on the 8th inst., in regard to the application of the Rural District Council of Liskeard for sanction to borrow 3,500*l.* for works of water supply for the chapely of East Looe. Mr. S. W. Jenkin, the Engineer, whose plans the District Council have accepted, gave particulars of his proposals, and described the existing waterworks, which in summer give a very insufficient supply.

PROPOSED NEW BRIDGE OVER THE TAY.—The Special Committee appointed to carry out the Perth Harbour, city improvements, and new gas works, met recently, and the Clerk was instructed to request Messrs. Blyth & Westland, engineers, Edinburgh, to prepare alternative plans of a bridge over the Tay—the one to show a bridge similar to plan already submitted, and the other a bridge suitable for tramway lines. They were also asked to prepare a plan of the grounds for the road of access.

NEW DOCKS, GLASGOW.—The new Prince's Dock, Glasgow, was opened on the 10th inst. by the Duke of York. Nearly fifteen years have elapsed since the construction of Prince's Dock was first decided upon. It has cost, including the graving dock and equipment, nearly a million and a half sterling. Mr. James Deas, C.E., the Engineer of the Trust, who had designed and superintended the construction of Queen's Dock, was commissioned to prepare Parliamentary plans for utilising the space for docks. Cessnock Dock, as the new dock has been known during its construction, has its entrance on the south side of the river about a mile and a half from Glasgow Bridge. Outer and entrance basins give access to a canting basin, from which branch eastwards at right angles to the basin and parallel to the river course three large basins, separated from each other by quays. The canting basin is 1,135 ft. long, and large enough to allow of the easy turning of a vessel 700 ft. long. Each of the three basins is about 200 ft. broad and 1,200 ft. long, and the intervening quays have a breadth of 250 ft. The depth of water in the docks will be from 20 ft. to 28 ft. at low water, and from 31 ft. to 39 ft. at high tide. The water area, including the canting basin (15½ acres), is 35 acres, and the quays measure 3,737 yds.—over two miles. Originally the trustees obtained power to construct two graving docks at the head of the inner basins, but that idea was abandoned in favour of one large dock, parallel to and immediately south of the two existing dry docks, and with access from the entrance basin of the new dock. This dry dock, of which the Duke of York laid the last copestone, is one of the largest in the world—is 880 ft. long and 82 ft. broad on the floor, and 115 ft. broad at the top. It has an entrance 83 ft. wide, and the depth of water on the sill is 26½ ft. The dock can be divided by steel gates into two practically independent sections, the outer 460 ft. and the inner 420 ft. long. The total cost of the dock, including the pumping and other apparatus, is about 240,000*l.*

WATER SUPPLY, STROMNESS.—A report, with plans and estimate, of a water supply for the burgh of Stromness, prepared by Mr. W. Copeland, C.E., Glasgow, which has been under the consideration of the Burgh Commissioners, has now been approved of, subject to some slight modifications. The scheme includes the formation of an artificial storage reservoir, about two miles from the town, covering about twelve acres. The whole cost is about 6,000*l.*

HARROGATE AND ITS SEWAGE.—An inquiry was held on the 17th inst., in the Council Chamber at the Municipal Offices, Harrogate, before Colonel W. R. Slacke, R.E., one of the inspectors of the Local Government Board, with reference to an application by the Corporation of Harrogate to borrow the sum of 3,500*l.* for further sewage disposal works at the Corporation Irrigation Farm, in the Ripon-road. In the new scheme it is proposed to utilise some 71 acres of land contiguous to the farm for the purposes of sewage pumping. Among those who attended the inquiry were Mr. J. Turner Taylor (Town Clerk), and Mr. S. Stead (Borough Engineer). There was no opposition to the scheme. It was stated that it was proposed to lift the sewage to the highest point on the Corporation farm.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOWS, NORWICH CATHEDRAL.—Two stained glass windows have just been placed in Norwich Cathedral as memorials of the late Lieut.-Colonel Bignold, and of the late Mr. and Mrs. Hotblack. The one to the memory of the late Lieut.-Colonel Bignold is situate in the south-east corner of the south transept, near the entrance to the vestry. The upper portion bears a representation of St. Paul, on either side of which is a smaller figure, bearing a scroll inscribed "Sanctus Paulus." The apostle-stands beneath an elaborate canopy. St. Paul in the presence of Agrippa forms the subject of the lower portion. The other window is in the south aisle of the nave. The three lights are filled by full-length figures. That in the centre represents our Saviour. The Virgin Mary, bearing a lily, is figured in the eastern light, and St. John the Evangelist, with the emblematic cup and serpent, in the western light. The upper portions of the window are filled in with angels bearing shields emblazoned with the sacred monogram and other ecclesiastical emblems. Beneath the window-sill is a brass tablet on which are engraved the arms of the deceased and an inscription. Both windows were designed and executed by Messrs. Clayton & Bell, and were erected under the supervision of Mr. Brown, architect to the Dean and Chapter.

WINDOWS, GREAT EASTON CHURCH, ESSEX.—Four stained-glass windows, by Messrs. Clayton & Bell, were dedicated recently in the Church of St. John, at Great Easton. The east window, consisting of three lights, was presented to the church by the Countess of Warwick. The other three are memorial windows. The subjects represented on them are the Virgin Mary, St. Peter, and St. John. Mr. Richard Creed, of Little Bardfield, is the architect, and he has also prepared plans for the restoration of the church.

DECORATION OF UDDINGSTON CHURCH, LANARKSHIRE.—After having been closed for six weeks for painting and repairs, this church has just been reopened. The work has been carried out under the supervision of Mr. John Gray, C.E.

MEMORIAL WINDOW, FROYLE CHURCH, HANTS.—A window has just been placed in the chancel of St. Mary's Church, Froyle. The subject is the "Presentation of Christ in the Temple," and it is the work of Mr. C. E. Kempe.

DECORATION OF CHURCH, BELFAST.—The Crescent Church, Belfast, has just been reopened after interior decorations. The painting generally has been executed in Duresco paint, and the work has been carried out by Mr. Alexander Thompson, Belfast, from the drawings and designs of Mr John B. Wilson, architect, Glasgow, who was also architect for the church.

FOREIGN.

FRANCE.—Twelve young architectural students of the Ecole des Beaux-Arts have just been admitted *en loge* to compete for the Chaudesaignes prize, the subject for which is "an open air theatre."——The pupils of the former Atelier Constant-Dufeux propose shortly to offer M. Bouvard a banquet in order to celebrate his nomination to the rank of Commander of the Legion of Honour.——The masonry works of the substructure of the railway station constructed on the Esplanade of the Invalides are now finished, and in a few weeks the excavation made to receive the offices and the metals of the new station will be entirely covered by a platform constructed at the ground level, on which the booking-offices and waiting-rooms, &c., will also be erected right and left of the Esplanade.——The architect, M. Henneux, has started the works of the new hospital for children, which is about to be erected in the Rue Etese. The area covered by the building will be 3,412 square mètres, and the expense of construction is estimated at 2,912,000 francs, which includes everything.——Very shortly there will be opened the new buildings of the postal and telegraph services, which M. Scellier of Gisors has been commissioned to erect at Paris in the Boulevard Brune.——A commencement has been made with the first operations in the restoration of the National Ecole des Beaux-Arts which for some years past has been falling into ruin. The engineer, M. Legouez, has just completed between the Port Clichy and the Place Moncey a tunnel 6 mètres in diameter, intended to drain off the surface water which along this road runs into the elevator factory at Clichy. This subterranean aqueduct will be, when finished, some 4½ kilomètres long.——The Administration des Ponts et Chaussées is about to commence, with very little delay, the work of forming a new landing-stage for the Ile des Cygnes, which will be erected on the Seine between the Passy Bridge and the Grenelle Bridge.——An Exhibition of Fine and Decorative Art is now open at Rheims.——A committee has just been formed at Bazoches (Nièvre) for the purpose of raising a monument to the honour of Marshal Vauban, whose remains have been interred in the small church of this town.——It is announced that the Bishop of Fréjus is about to rebuild, at his own cost, the church of Brancourt (Aisne).——The Municipality of Evreux have announced a competition for the erection of a theatre.——There has just been discovered at Saumur a tomb dating from the Gallo-Roman period of the third century.——Work is being actively carried on with the construction of the iron viaduct at Tanus which crosses the deep valley of the Vaur on the line from Carmaux to Rodez. This bridge will be 160 mètres in height, and nearly 500 mètres long. The central span itself measures 220 mètres in length.——The commemorative monument of the Franco-German war, which has been recently inaugurated at Dung, near Montbéliard, is the work of M. G. Meigret.——The Government have just resolved upon the final lines of the works which are about to be undertaken at Bizerta

for the formation of a military post at the end of Lake Sidi-Saïd. The duration of the works is estimated at three or four years, and the expense of carrying them out at about fifteen million francs.——There has just been opened in the Department of the Sarthe a new railway line between Mazet and Le Mans.——The death is announced, at the age of seventy-six years, of M. Henri Blondel, the architect to whom is due the transformation and the creation of the Marbeuf Quartier, and also the erection of the Bourse du Commerce on the Place of the Halle aux Blés.

CAPITAL AND LABOUR.

PETERBOROUGH CARPENTERS' AND JOINERS' WAGES.—A settlement between the master builders and the carpenters and joiners of the Peterborough district, with regard to the rate of wages has, after nearly nine months of correspondence, been effected. The men had asked for an increase, and the masters had offered a halfpenny rise to all joiners whom they considered competent. An agreement has now been signed that the standard rate of wage shall be 7d. per hour. The agreement dates from January, 1897, until January, 1900, and if any alteration is then desired a three months' notice must be given.

THE BUILDING TRADES IN EAST DURHAM.—The building trades in East Durham are said to be so busy that workmen are at a premium, and high wages are consequently being paid. This is especially so with the bricklayers, who are receiving from 10d. to 1s. per hour as wages. If the men have to go from home to work "travelling money" is allowed in addition. One master builder, in order to keep his men together, has hired a wagonette, in which the latter are conveyed to work at morning, and to their homes in the evening, the distance each way being about five miles.—*Newcastle Leader.*

THE LEEDS BUILDING TRADE.—In accordance with the terms of settlement of the dispute in the Leeds building trade a twelvemonth ago, two new rules came into force on the 20th inst. One of them gives the labourers an advance of ¼d. per hour, making their wages 6½d. an hour, and the other—a modification in favour of the employers—calls upon the labourers to wheel bricks and mortar to ground levels.—*Leeds Daily News.*

LEGAL.

ALLEGED OBSTRUCTION OF ANCIENT LIGHTS IN LUDGATE HILL:

CASE IN THE VACATION COURT.

THE case of Goode *v.* Bridgewater (reported in the *Builder* of September 18) again came before Mr. Justice Ridley in the Vacation Court on the 22nd inst., on the motion of the plaintiff for an injunction to restrain the defendant from erecting a wall or building in Ludgate Hill so as to obstruct his (the plaintiff's) ancient lights.

Counsel now stated that it had been arranged the motion should stand till the trial, the costs being reserved.

His Lordship assented to the application.

The learned counsel then applied for leave to ask Mr. Justice North to expedite the trial.

His Lordship: You have nothing to show why you should come on sooner than anybody else?

The learned counsel explained that as the plaintiff was applying for a mandatory order it was in the interest of the defendant that the case should be disposed of as soon as possible.

His Lordship: Is it part of the terms you have made?

The learned counsel said it was not, but that it was in the interest of both parties the trial should come on quickly. The defendant had spent a large sum of money on his building, and if the plaintiff got his mandatory order at the trial he (the defendant) would be materially damaged if he had to pull down the premises then. He (the learned counsel) asked leave to set the case down for trial at once, with liberty to apply to Mr. Justice North to expedite it.

His Lordship also granted this application.

ALLEGED INFRINGEMENT OF ANCIENT LIGHTS:

CASE IN THE VACATION COURT.

THE case of Burr *v.* Sir Isaac Pitman & Sons, Limited, came before Mr. Justice Ridley, sitting as Vacation Judge, in the Chancery Division on the 22nd inst., on the motion of the plaintiff for an *interim* injunction to restrain the defendants until the trial of the action from building so as to block out the light and air from his premises.

Mr. Stewart Smith, for the plaintiff, said that his client had a lease, and carried on a private hotel in Queen's-square, Bloomsbury, and defendants were putting up a large building which was to be used as a technical school for instruction in shorthand. The old building on the defendants' site was pulled down a few years ago, and the new building which had been put up was 27 ft. higher than the old one. The learned counsel stated that the facts were not in dispute, the only question which arose being whether the additional height to which the new building had been erected materially affected the light and air coming to the basement window and to the window of the dining-room of the plaintiff's hotel. It was a case in which there was a conflict of testimony by the architects on either side. Witnesses on one side swore that there was a material diminution of light to the plaintiff's premises by the erection of the new building, while the witnesses on the other side said that there was no material diminution. He (the learned counsel) said he felt he could not ask his lordship to try the case in the vacation on affidavit. He thought it was a case in which it was necessary that the witnesses should be seen.

His Lordship: And probably to see the premises also?

Mr. Stewart Smith agreed. Of course, the plaintiff was compelled to move to restrain the building of the defendants, inasmuch as it might have been said that he had stood by and allowed the defendants to put up their building. He wished to suggest the means whereby all difficulty on that head was got over. He was content, having got all the evidence of the defendants, that the motion should stand till the trial, and that the case should be set down at once without pleadings. He would further suggest that Mr. Justice North, before whom the case would come, should be applied to to advance the trial. That was the practice in the Chancery Division when the judge felt that he could not try a case out on affidavit.

His Lordship: Does Mr. Justice North object to the case being set down without pleading?

Mr. Stewart Smith: No; it is the usual practice in light, and air, and nuisance cases.

His Lordship: Is the issue quite clear?

Mr. Stewart Smith: Yes; I think so.

His Lordship: Is there any question about the plaintiff's lights being ancient?

Mr. Stewart Smith: No; my learned friend does not raise that question on the affidavits.

Mr. Alexander, Q.C. (for the defendants): No; there is no question about that.

His Lordship: What does Mr. Alexander say about it?

Mr. Alexander: I do not think on the affidavits that there is any case at all against the defendants.

His Lordship: I cannot give you judgment now, Mr. Alexander.

Mr. Alexander: I should like the motion dismissed at once.

Mr. Stewart Smith (to Mr. Alexander): Perhaps you would like the costs paid in advance?

After some further discussion it was mutually arranged that the motion should stand till the trial, the case to be set down at once without pleadings, and with liberty to apply to Mr. Justice North to advance the trial.

Order accordingly.

THE PROTECTION OF BUILDINGS.

AT the Second Court of the Sheffield City Police on the 15th inst., before Messrs. F. P. Rawson and Bernard A. Firth, Mr. Robert Hunt, builder, 85, Empire-road, was summoned for having failed to provide proper hoardings or fencing to separate from the roadway certain houses he intended to build in Wath-road. Mr. H. Sayer, Deputy Town Clerk, prosecuted, on behalf of the Chief Constable, and Mr. W. E. Clegg defended.

Mr. Sayer said defendant was building several houses on one side of Wath-road, the other side being already built up. He had taken up a great portion of the road, only leaving sufficient room for one cart to pass. He had failed to erect a proper hoarding in front of the houses to protect the people who used the road. Wath-road was undedicated. An erroneous impression prevailed amongst all the builders in Sheffield that when they were building in undedicated roads the Act of Parliament did not apply, and they were not compelled to provide hoardings. There could not be a greater mistake. The question of dedication was entirely immaterial, as the words of the section were very wide. A builder, even if he were erecting a house in a back-yard, to which people had access, would have to provide a hoarding for their protection. Defendant had been cautioned, and a notice had been served upon him from the City Surveyor's office. An inspector called upon him with regard to the matter, and defendant said he was not going to be bothered, and if there was anything more said, he would build a wall at the end of the road, and thus close it. That course would not have done him any good, as he would have been compelled to erect a hoarding for the protection of the people living in the houses already built.

Mr. Clegg said his client, as well as other builders in Sheffield, had held the opinion that where they built houses in undedicated roads the Corporation could not force them to erect hoardings, and that if people went along the roads they did so at their own risk. The Corporation were building a wall a few yards away from the place, and had thrown all their material on the highway, and had not erected a hoarding. No one could take proceedings against them.

The Chairman: You must summon them.

Mr. Clegg said they could not, as the Corporation would probably be able to say that they had obtained their own consent to do away with the hoarding.

Mr. Sayer said the work the Corporation was carrying out was the building of a wall. It was not a building, and did not come within the Act, and did not require a hoarding.

The Magistrates imposed a fine of 2*l.*, and costs, 7s.

LANDLORDS AND SANITARY INSPECTORS

IN the City of London Court on the 16th inst. before Mr. Commissioner Kerr, Mr. Robert E Clarke, builder, 16, Finsbury-pavement, E.C., sought to recover the sum of 10*l.* 2s. against the defendant, Mr. Frederick London, 170, Edmund-street, Birmingham, for work done at 85, Finsbury-pavement, of which the defendant was the landlord.

Mr. Harry Dade, for the plaintiff, explained that the defendant's London property was managed by Messrs. Tillett & Yeoman, a firm of estate agents. The house in question had been empty, and they succeeded in letting it. The tenant wanted certain repairs done, which the plaintiff estimated would cost 85*l.* The order was given him; and, indeed, the 85*l.* had been paid by the defendant, as the landlord. But while the work was in progress the City of London Sanitary Inspector visited the house. That official ordered the plaintiff to do extra work, for which he now asked the defendant to pay.

Mr. Aldous, for the defendant, urged that no liability could attach to the defendant for the extra work which he had never ordered to be done. What business had a builder to do work which the landlord had not instructed him to do?

Mr. Commissioner Kerr replied that if a sanitary inspector required work done a builder was bound to do it. Under the Sanitary Acts a landlord was liable for such work, although he did not give any order.

Mr. Aldous argued that the defendant, as the landlord of the property, should have been communicated with.

Mr. Commissioner Kerr said that if that had been done, and the defendant had not given the order, the Sanitary Inspector would have taken him before a magistrate, who would have made an order. It was no use opposing Sanitary Inspectors when they wanted necessary work done. It was for the public benefit.

Mr. Gathercole, the Sanitary Inspector, said the work was done on his verbal order. He did not have to serve the landlord with a written notice.

Mr. Aldous contended that without a written notice the statute had not been complied with.

Mr. Commissioner Kerr said he could not hold that. The defendant could not get out of it. There must be judgment for the plaintiff for the amount claimed, with costs.

CASE UNDER THE LONDON BUILDING ACT, SECTION 74 (2).

ON the 16th inst., before Mr. Dickinson, at North London Police-court, the case of A. Payne, District Surveyor of East Hackney (South) and North Bow *v.* Simpson & Cove, builders, was heard. Defendant had made alterations and additions to a public-house, the "Devon Arms," 58, Morning-lane, Hackney, exceeding ten squares in area, and had formed an approach from the back leading to the bar and the staircase for the use of the dwelling house without fitting the opening between the said approach and the bar with fire-resisting doors. The defendant replied that he was carrying out the instructions of the architect, who said the doors were not necessary The defendant was fined 10s. and 12s. costs, with an intimation that he would be liable to a further penalty if the doors were not placed there.

APPLICATION TO RESTRAIN ERECTION OF BUILDING.

MR. JUSTICE RIDLEY, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., had before him the case of Hind *v.* Worthington & Co., Limited, a motion by the plaintiff for an injunction to restrain the defendants from erecting a building and from committing an alleged building trespass.

On the application of counsel, his Lordship directed that the case should stand over for a week, it being stated that in all probability the parties would be able to come to terms.

APPLICATION TO RESTRAIN ERECTION OF BUILDINGS.

THE case of Godber *v.* Collbran was in the list for hearing before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., it being an application by the plaintiff for an interim injunction until the trial of the action to restrain the defendant from the erection of certain buildings.

His Lordship directed that the motion should stand over for a week in order that terms might be arranged between the parties.

MOTION TO RESTRAIN ERECTION OF BUILDING.

THE case of Ward & Goldfinch *v.* McBlain & Freeman was, on the 22nd inst., in the list for hearing before Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the motion of the plaintiffs to restrain the defendants, by injunction, from erecting a building, &c.

It was stated by counsel that the evidence was

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Town Hall and Law Courts	Cardiff Corp.	300l.; 200l.; 100l.	Dec. 4

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Reservoir, &c. on Losher Water	Renfrew C.C.	R. Gilmour, C.E. Municipal Buildings, Greenock	Sept. 24
Waterworks at Workhouse	Downpatrick Union	J. W. Montgomery, Clerk to Union, Downpatrick	Sept. 25
Rebuilding Premises	Mr. P. Gingles	E. & J. Byrne, Archt. 4, Waring-street, Belfast	do.
Farmhouse, Arlaw Banks	Rev. H. Lonsdale	F. H. Livesey, Archt. Market-pl. Bishop Auckland	do.
Twenty Villas, Barry	Barry Windsor Building Co. Ltd.	A. M. Love, Archt. Central-chambers, Working-street, Cardiff	Sept. 27
Fifty-two Cottages	do.	do.	do.
Six Houses, Masborough	B. Smith	E. Hutchinson & Son, Surv. 18, Howard-st. Rotherham	do.
Five Artisans' Dwellings, Forres	J. Mackenzie	P. Fulton, Archt. Forres	do.
Additions, &c. to Baths	Liverpool Corp.	W. R. Court, Engr. 15, Gt. George-sq. Liverpool	do.
House and Shop, Collingwood-road	Mr. A. M. Atkinson	J. T. Wilson, Archt. West Hartlepool	do.
Roadworks	Knutsford U.D.C.	W. J. Dawes, Surv. to Council, Knutsford	do.
Roadworks	Llandaff and Dinas Powis R.D.C.	J. Holden, Engr. Council Offices, Queen's-chambers, Cardiff	Sept. 29
Roadworks	Levenshulme U.D.C.	J. Jepson, Surv. to Council, 9a, Union-rd. Stockport	do.
Ten Houses, &c. Hilderthorpe	W. Battle	J. Farnshaw, Archt. Bridlington Quay	do.
Nineteen Houses, Featherstone	Mr. W. Anderson	Garside & Keyworth, Archts. Pontefract	do.
Residence, &c. Keighley	.....	J. Hellingham, Archt. District Bank-chambers, Bradford	do.
Wharfage	Irvine Harb. Trustees	G. Thomson & Dunn, C.E. 97, Wellington-st. Glasgow	do.
Four Villas, Tadcaster	.....	Bromet & Thorman, Archts. Tadcaster	do.
Drainage Work for Cemetery	Rathdown Union	Carter Draper, C.E. 26, Grosvenor-rd. Rathmines	do.
Waiting Room, Offices, &c.	do.	do.	do.
Addition to Registrar's House	do.	do.	do.
Three Labourers' Cottages	do.	do.	do.
Sewerage Works	Ham U.D.C.	Col. Seddon, Engr. 27, Bowlane, London, E.C.	Sept. 29 do.
Limestone	Golligner and Rhigos R.D.C.	W. Bevan, Highway Surv. Dari, viâ Cardiff	do.
Offices and Extensions to Mill	B. Vickerman & Sons	J. Berry, Archt. 9, Queen-street, Huddersfield	do.
Buildings, Aviemore (two contracts)	Highland Ry. Co.	W. Roberts, Engr. Inverness	do.
Sewer Works	Tanfield U.D.C.	R. Heslop, Surv. Burnopfield, R.S.O.	do.
*Public Library	Southwark Vestry	Phipps & Jackson, 28, Mecklenburg-sq. W.C.	do.
Epileptic Block at Workhouse Infirmary	Guardians	W. E. Ward, Archt. Paradise-street, Birmingham	do.
Fifty Cottages, Treslaw	.....	T. R. Phillips, Archt. Old Bank-chambers, Pontypridd	do.
Additions to Hotel, Hemsworth	.....	R. & W. Dickson, 5, Eastgate, Barnsley	do.
*Repairs and Materials	War Department	Commanding R.E. Headquarters Offices, Stanhope Lines, Aldershot	do.
Painting, &c. Rate Collector's Office	Gateshead Corporation (Health Committee)	J. Bower, C.E. Town Hall	do.
Painting, &c. Sheriff Hill Hospital	do.	do.	Sept. 30
Alterations, &c. Barry School	Glamorgan C.C.	County Surv. Town Hall, Bridgend	do.
Alterations to Farmhouse, Grosmont, Bargoed	Glamorgan County Governing Body	W. E. R. Allen, Glamorgan County Offices, Westgate-street, Cardiff	do.
Painting, &c. Cemetery Chapels, &c.	Darnell Burial Board	W. Reid, Clerk to the Board	do.
House, Nunthorpe Station	J. J. Bratton	R. Moore, Archt. 7, Albert-road, Middlesbrough	do.
Continuous Brick Kiln	Durham City & Shincliffe Brick and Tile Works Co.	J. Curry, Manager, Chilton Moor, Fence Houses	do.
Alterations, &c. Premises, Bridlington	Hardwick & Sons	Hardwick & Sons, Quay-rd. Bridlington	do.
Business Premises	Ipswich Co-op. Soc.	Eade & Johns, Archts. Cornhill Chmbrs. Ipswich	do.
*Extension Carriage Painting Shop, Derby, and Schools, near Alfreton	Midland Railway	Co.'s Archt. Cavendish House, Derby	Oct. 1
Medical Officer's Residence, &c. Arklow	Rathdrum Union	R. Manning, Clerk, Workhouse, Rathdrum	do.
Boiler House, &c. South Stoneham Union Workhouse	Eel Guardians	W. H. Mitchell, Son, & Gutteridge, Archts. 9, Portland-st. Southampton	do.
Alterations, &c. Magheragall Church	.....	Blount, Archt. Atlantic Bldgs. Waring-st. Belfast	Oct. 2
County School, Hawarden	.....	Grayson & Ould, Archts. 31, James-st. Liverpool	do.
Sewerage Works	Douglas (Isle of Man) Corp.	Stevenson & Burstal, Engrs. 28, Parliament-st. Westminster, London	do.
Shop, &c. Walton	Freehold Land Soc.	Office of Soc. Prince's-st. Ipswich	do.
*Repairs, Cleaning, Painting, at Infirmary	Croydon Union	T. West, 23, Coombe-rd. Croydon	Oct. 4
Chimney Shaft	Rotherhithe Vestry	Norman Scorgie, Town Hall, Rotherhithe	do.
Cottage, Pronpech	Bala & Festiniog Ry. Co.	Station Master, Bala Station	do.
Classroom, Writtle	Writtle Sch. Bd.	A. P. Lindsell, Clerk	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Water Supply and Sewage Works, Clandeboy	.....	J. Lanyon, Engr. Northern Bank Chmbrs. Royal-avenue, Belfast	Oct. 4
Six Houses, Tir Phil-road	.....	G. Kenshole, Archt. 28, Dufferyn-ter. New Tredegar	do.
*Stoneware Pipe Sewers, Iron Pipes, Construction Pumping Station Buildings	Southend-on-Sea Corp.	J. Mansergh, 5, Victoria-street, S.W.	do.
*Constructing Stables and Fixing Water-softening Plant	Islington Vestry	J. Patten Barber, Vestry Hall	do.
*Supplying and Laying Norway Kerb, Stone, Gravel, Hardcore, &c. &c.	Romford U.D.C.	The Surv. Council Offices, Romford	do.
*Band Stand, &c. Bethnal Green	London C.C.	Archt.'s Dept. 17, Pall Mall East, S.W.	Oct. 5
*New Well, Alterations to Engine House, Pumps, Engines, &c.	Brentford U.D.C.	Nowell Parr, Clifden House Boston-road, Brentford	do.
*Pipe Sewers and Manholes, Granite Kerb, Footpath	Leyton U.D.C.	W. Dawson, Town Hall, Leyton	do.
*Repair of Road	County Borough of Croydon	Boro. Road Surv. Town Hall	do.
Alterations to Workhouse	Petworth Union	A. F. Mant, Clerk to Union, Petworth	do.
Bridges, Frome & Llangunoyd	G.W.R. Co.	Engr. Paddington Station	do.
Bridge, Oxford (Contract 2)	do.	do.	do.
*Materials (various)	Coventry Corp.	J. R. Swindlehurst, Town Hall	do.
Main Concentrating Sewers, &c.	Glossop Corp.	Lomax & Lomax, Engrs. Grosvenor-chambers, Manchester	do.
Alterations to Workhouse	The Guardians	A. F. Mant, Clerk, Petworth	do.
*Laundry	Wandsworth and Clapham Union	T. W. Aldwinckle, 1, Victoria-street, S.W.	Oct. 6
Laundry, Lanchester Workhouse	Lanchester Union	G. T. Wilson, Archt. 121, Durham-rd. Black Hill	do.
Stables	Weybridge U.D.C.	J. S. Crawshaw, Surv.	do.
*Sewerage Works	Westminster Vestry	G. R. W. Wheeler, Town Hall, Caxton-street, S.W.	do.
*Making-up Streets	Southend-on-Sea Corp.	A. Fidler, Clarence-road, Southend	do.
*Granite	Gravesend T.C.	Borough surveyor	do.
School	.....	W. Clement Williams, Archt. 29, Southgate, Halifax	do.
Central Police Station, Belfast	.....	City Surv. Belfast	Oct. 7
Steel Roof over Market, &c.	Coombes & Co. Ltd.	T. Martin, Surv. Radstock	do
Offices, Maltrooms, &c.	do.	do.	do.
Painting, &c. 83, Charles-st. Cardiff	Cardiff Union	A. J. Harris, Cardiff Union Offices, Queen's-chmbrs. Cardiff	Oct. 9
Class-room, Garn Schools	Blaenavon Sch. Bd.	Lansdowne & Griggs, Archts. Newport, Mon.	do.
Spittal Sewerage	Sanitary Authority, Berwick-on-Tweed	R. Dickinson, Boro Surv. U.S.A.-bldgs. Berwick	do.
Asylum Blocks, &c.	Commrs. for Control of Lunatic Asylums	Board of Control of Lunatic Asylums, Custom House, Dublin	do.
*Making-up Road Sewers, &c.	Beckenham U.D.C.	J. A. Angell, Council Offices	Oct. 11
Alterations to Cymmer Schools, Porth	Ystradyfodwg Sch. Bd.	J. Rees, Archt. Hillside Cottage, Pentre	do.
Porter's Lodge, Hospital, Haverstock Hill	.....	Pennington & Son, Archts. Hastings House, Norfolk-street, Strand	Oct. 12
*Gate Porter's Lodge	Met. Asylums Board	Offices, Norfolk House, Norfolk-street, W.C.	do.
*Isolation Hospital	Enfield U.D.C.	R. Collins, Court House, Enfield	do.
*Stoneware and Iron Pipe Sewers, Manholes, &c.	Billericay R.D.C.	Messrs. Jones, 25, Parliament-street, S.W.	2 do.
*Alterations, Workhouse, Bletchingley	Godstone Union	T. Elliff, Caterham, Surrey	Oct. 15
*Erecting New City Hall	Belfast Corp.	E. Thomas & Son, 7, Queen Anne's-gate, S.W.	Oct. 21
*Cottage Home	Hartley Wintney Union	Union House, Winchfield	Oct. 22
*Alterations, Surface Drainage	War Department	R.E. Office, N. Aldershot	No date
*Dust Destructor Building and Chimney	do.	do.	do.
Passenger Station, &c. Port St. Mary	Isle of Man Ry. Co.	G. H. Wood, Sec. and Manager, Douglas	do.
Two Houses, Whingate, Armley	.....	Ambler & Bowman, Archts. 9, Park-place, Leeds	do.
House, Roundhay	Mrs. Lilley	do.	do.
Pair of Semi-detached Houses, Lidget Park Estate	Mr. K. Banks	do.	do.
Sixteen Houses, Preston	L. & N.W. & L. & Y. Ry. Co.	G. P. Aveline, Estate Office, Central Station	do.
Street Works, Unthank's-road, Norwich	.....	D. Hall, Swardeston	do.
Alterations, &c. Waterloo Hotel, Swansea	F. Bradford	Margrave & Peacock, Archts. Metal Exchange, Swansea	do.
Caretaker's House, Whingate-road School	Leeds School Board	W. S. Braithwaite, Archt. to the Board	do.
Offices, &c. Atlas Brewery, Newbury	South Berks Brewery Co. Ltd.	J. H. Money, Archt. The Broadway, Newbury	do.
National School	.....	F. M'Namee, Ballaghey, Castlederwood, R.S.O. co. Londonderry	do.
Alterations, Royal Hotel, Kirkby Lonsdale	.....	J. Kassell, Archt. Kirkby Lonsdale	do.
Villa Residence, Whitehead, Belfast	D. J. Lanigan	T. Fentland, Archt. 35, High-street, Belfast	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Architect and Surveyor	Cutlers' Company	100l. per annum	Sept. 28
*Surveyor	Woodford U.D.C.	200l. per annum	Oct. 4
*Chief Clerk (Engineer's Department)	Coventry Corp.	130l. per annum	Oct. 5
*Two Road Foremen	do.	2l. per week each	do.
*Architectural Assistant	do.	150l. rising to 180l. per annum	do.
*Building Inspector	do.	180l. per annum	do.

Those marked with an asterisk (*) are advertised in this Number. *Contracts, pp.* iv. vi. & viii. *Public Appointments, pp.* xviii. xix. & xxi.

not yet complete, and his Lordship, by consent, directed that the motion should stand over for one week.

ALLEGED INTERFERENCE WITH ANCIENT LIGHTS.

IN the case of Jermyn *v.* Cooke, Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., gave the plaintiff leave to serve notice of motion with the writ on the defendant returnable for next week, the application being to restrain the defendant from building back his premises so as to interfere with the plaintiff's ancient lights. Council for the plaintiff said that he had in support of his application an affidavit by an architect, who said that if the building by the defendant went on it would seriously interfere with the plaintiff's lights.

MEETINGS.

SATURDAY, SEPTEMBER 25.

Architectural Association.—Summer visit to the Grove Hospital, Tooting. Mr. A. H. Tiltman, architect.

Devon and Exeter Architectural Society (Plymouth, Devonport, and Stonehouse Branch).—Visit to Truro Cathedral. Depart from Plymouth (G. W. Railway) 11.5 a.m.

MONDAY, SEPTEMBER 27.

Sanitary Institute (Lectures for Sanitary Officers).—Introductory Lecture: "The Outcome of Sanitation," by Dr. Louis Parkes. 8 p.m.

WEDNESDAY, SEPTEMBER 29.

Builders' Foremen and Clerks of Works Institution.—Quarterly meeting of the directors. 8 p.m.

THURSDAY, SEPTEMBER 30.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. Manley, M.A., on "Sanitary Law, English, Scotch, and Irish; General Enactment Public Health Act, 1875; model by-laws, &c." 8 p.m.

SATURDAY, OCTOBER 2.

British Institute of Certified Carpenters. — Visit

to the new baths, &c., Shoreditch, at 3 p.m. Meeting at Carpenters' Hall at 6 p.m. Lecture by Mr. J. Clark on "Geometry Applied to Carpentry."

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

22,259.—CRAMP FOR JOINERY, &c.: *H. D. Needham.*—Inventor claims in an improved cramp for joinery, &c., the combination with a bar provided with a rack of a sliding jaw fitted on such bar, a wedge connected thereto and a rack at the lower end of the wedge engaging with the rack on the bar. Modifications are described.

22,656.—FIRE GRATES: *R. D. McKellen and Another.*—Invention consists in the use of a hollow casing or passage connecting two or more fireplaces situated in rooms vertically above or below one another, for the purpose of transferring the fire from one fireplace to another, and in a movable fireplace adapted thereto.

22,849.—BALUSTER FOR HANDRAILS: *T. Forbes.*—Inventor claims an arm-formed guard which projects upwards and forms part of a combined baluster and guard.

28,009.—SAWING APPARATUS: *S. Mundey.*—Inventor claims in sawing machines an adjustable swinging arm, connected with a saw arm, attached to spindle carrying counterpoise, whose weight operates saw in one direction to some degree. The parts are supported by a frame which may be taken to pieces if required, and there is a clamp for holding wood operated on.

4,392.—BRICK, &c., KILNS: *G. Pitts.*—Inventor claims in his kilns the two principles (1) of firing from one side only of each kiln, and (2) of working certain valves for down draught kilns, by which burner has entire control of fire.

4,606.—FLUSHING CHAMBERS, &c: *S. H. Adams.*—Inventor claims the use of a flushing chamber so constructed that, the impure liquid in passing through its filter (the flushing tank proper) shall be filtered in passage; also the use of a screening chamber, sludge plug, &c.

5,532.—WATER-CLOSETS: *D. S. Wallace.*—Inventor claims in a syphon water-closet the combination of a bowl, the supporting base, with means for flushing same, a discharge passage forming a long syphon leg, and a variety of subsidiary combinations.

9,493.—URINALS: *M. J. Adams.*—Invention consists in portions of a urinal so constructed that they may serve either for the front or back of a complete apparatus, and so that the wings shall overlap the other portions sufficiently to cover the roughness by ties in the process of manufacture. Various modifications are described and claimed.

NEW APPLICATIONS FOR LETTERS PATENT.

SEPTEMBER 6.—20,405, W. Bryan, Preventing Water-supply PipesFreezing or Bursting.—20,407, T. Rhodes and R. Gaunt, Silencing the Noise in Flushing Cisterns.—20,414, W. Thomson, Glass Tiles.—20,417, J. Taylor, Joint for Sewage and other Pipes.—20,421, G. Jensen, Testing and Tracing Leakages in Gas-pipes and Gas-pipes Systems, &c.—20,426, H. David, jun., Cupboard Turn.—20,454, D. A. Kard, Door Opener and Closer.

SEPTEMBER 7.—20,491, R. Simpson, Building of Arches upon Metal Girders or Wooden Beams.—20,520, E. Giles, Dry Water-pipe System for Houses.—20,550, F. Trier, Stoneworking Machinery.—20,558, T. Rhodes and R. Gaunt, Water-closets.

SEPTEMBER 8.—20,606, C. Udall, Wall Plugs.—20,619, T. Scotland, Window Sashes.—20,665, E. Fox, Non-inflammable Wood.—20,670, T. Holden and C. Major, Manufacture of Cement.—20,681, F. Brown, Kitcheners.

SEPTEMBER 9.—20,747, T. and J. Claughton, Syphon-flushing Cisterns.—20,759, J. Goddard and F. Johnson, the Adaptation to Sanitary Earthenware and Earthenware for Shop Windows, Counters, &c., of a Marbled or Veined Body.—20,766, S. Mills, Water-closet Pans and their Service Pipes.

SEPTEMBER 10.—20,795, J. Hulls, Glasses or Glazings for Windows, &c.—20,809, J. McNaughton, Water Taps.—20,856, J. and T. Hollis, Wood Block Flooring.—20,858, R. Paver, Window Sash Fasteners.

SEPTEMBER 11.—20,873, W. Mavitta, jun., Folding Joints of Measuring Rules, &c.—20,877, A. Laing, Window Sash Fasteners.—20,944, J. Duckett & Son, Limited, and Others, Water-closets.

PROVISIONAL SPECIFICATIONS ACCEPTED.

11,653, J. Lawrence, Gully Trap, Applicable to all Traps.—16,302, R. Packer, Sash Fasteners.—17,922, J. Shettle, Sash Fastening Devices, &c.—18,362, J. Keylock, Number Plates for Street and Other Doors.—19,715, W. McLaren, Opening, Closing, and Fastening Windows and Ventilators.—19,753, C. Brooke, Fasteners for Window Sashes.—19,969, J. Leather, Ventilating Appliances.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

22,234, T. Skerman, Ventilators and Chimneys.—23,453, H. Davies, Joiner's Bench Stop.—24,095, J. Knights, Making Coloured Tiles for Floors or Building Purposes.—24,621, J. Bonehill, Cowl or Chimney Pipe.—25,225, A. Fludder and G. Innes, Bricks, Tiles, &c.—16,879, J. Crawford and J. Holmes, Outbuildings.—17,951, J. James, Manufacture of a Part of Knot-Holding Attachments for the Cords or Lines for Window Blinds, Sashes, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 8.—By HEDLEY & SON (at Newcastle).

Ponteland, Northumberland.—"Prestwick Mill Farm," 111 a. 2r. 25 p., f. £4,280

September 9.—By JOHN FRANCIS (at Llanelly).

Llangendeirne, Carnarvon.—"Llwynpatris Farm," 42a. 1r. 33 p., f. 260

Five freehold houses and 2 a. 0r. 39 p. 335

"Pantyff-y-Non," and 5a. 3r. 10 p., f. 200

September 10.—By CUMBERLAND & SONS (at Derby).

Hilton, Derby.—"Hargate Manor Farm," 163 a. 0r. 2 p., together with the "Swan Inn" and 1a. 0r. 13 p., f. 8,150

September 11.—By BRUTON, KNOWLES, & Co. (at Gloucester).

Maisemore, Glos.—"The Maisemore Park Estate," 199 a. 2r. 3 p., f. 14,800

An enclosure of land, 14 a. 0r. 23 p., f. 1,100

Ashleworth, Glos.—Enclosures of land, 20 a. 2r. 21 p., f. 1,000

September 13.—By F. VARLEY.

Leyton Green.—8, High-st., f., r. 28*l.* £390

Leytonstone.—22, 22a, 23, and 23a, Cathall-rd., f., r. 54*l.* 12s. 450

Hoxton.—74, Bridport-pl., u.t. 34½ yrs., g.r. 5*l.* 5s. 6*l.* 4s. 8d. 350

Barnsbury.—98, Richmond-rd., u.t. 64 yrs., g.r. 6*l.* 4s. 8d. 195

Stepney.—18, Copley-st., u.t. 45½ yrs., g.r. 4*l.*, r. 40*l.* 350

By MILLER & ABBOTS (at Bicester).

Ludgershall, Bucks.—"D'Oyley's Farm," 128 a. 0 r. 28 p., f. 2,850

September 14.—By C. H. BROWN.

Westminster.—28, Romney-st., f., r. 48*l.* 2s. 520

By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern).

Kennington Pk.-rd.—"The Hanover Arms" p.-h., u.t. 47½ yrs., r. 120*l.*, with goodwill 38,800

Fulham.—Fulham-rd., "The King's Arms" p.-h., u.t. 49 yrs., r. 100*l.*, with goodwill 12,500

Limerston-st., "The Odell Arms" p.-h., u.t. 29½ yrs., r. 100*l.*, with goodwill 7,710

By J. HART BRIDGES & SONS (at Masons' Hall Tavern).

Acton.—High-st., "The White Hart" p.-h., with goodwill; also two residences adjoining, u.t. 28½ yrs., r. 175*l.* 9,000

By C. F. MOORE (at Devizes).

Avebury, Wilts.—"The Beckhampton Estate," area 622 a. 3 r. 10 p., f. 5,200

Two freehold residences 250

By J. T. WOOLLEY (at Salisbury).

Wylye, Wilts.—"Wylye Farm," 109 a. 1 r. 28 p., f. 2,500

By NOCK & JOSELAND (at Kidderminster).

Alveley, Salop.—"The Low Farm," 175 a. 3 r. 28 p., f. 4,425

September 15.—By DOUGLAS YOUNG & Co.

Clapham.—28, Fentiman-rd., u.t. 28 yrs., g.r. 6*l.* 10s., r. 42*l.* 235

9, Binfield-rd., u.t. 26½ yrs, g.r. 6*l.* 13s. 4d., e.r. 50*l.* 375

Wandsworth.—17, Wilcox-rd., u.t. 16½ yrs., g.r. 3*l.* 10s., r. 36*l.* 8s. 100

Brockley.—17, Brockley-rd., u.t. 64½ yrs., g.r. 4*l.* 14s., r. 30*l.* 260

By F. JOLLY & Co.

Poplar.—72, Bath-st., u.t. 47 yrs., g.r. 4*l.* 170

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	£ s/s to £ s/s
Teak, E.I.	load	12/10/0 15/10/0
Sequoia, U.S.R.	cu. ft.	1/8 1/10
Ash, Canada	load	3/5/0 4/10/0
Birch, do.		4/5/0 6/0/0
Elm, do.		4/0/0 5/5/0
Fir, Dantsic, &c.		2/5/0 4/5/0
Oak, do.		2/10/0 3/10/0
Canada		5/10/0 6/10/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		2/0/0 4/0/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		1/10/0 3/15/0
Odessa, crown		1/10/0 2/15/0
Deals, Finland end & 1st std	120	8/0/0 8/10/0
Do. 4th & 3rd		6/0/0 8/10/0
Do. Riga		6/10/0 7/10/0
St. Petersburg, 1st yellow		10/0/0 12/10/0
Do. 2nd yellow		9/0/0 10/10/0
Do. white		8/10/0 10/10/0
Swedish		9/0/0 15/10/0
White Sea		9/10/0 16/0/0
Canada, Pine 1st		20/10/0 26/10/0
Do. do. 2nd		15/0/0 17/10/0
Do. do. 3rd, &c.		7/10/0 11/0/0
Do. Spruce, 1st		10/10/0 12/0/0
Do. do. 3rd and 2nd		8/0/0 9/0/0
New Brunswick		7/10/0 8/0/0
Battens, all kinds		5 0/0 10/0/0
Flooring boards, 9/., 1 in. prep. 1st		0/8/6 0/15/6
Do. 2nd		0/7/0 0/10/0
Other qualities		0/5/0 0/6/6
Cedar, Cuba, ft.		/4½
Honduras, &c.		/3½ /4½
Mahogany, Cuba		/5 /8½
St. Domingo, cargo av.		/4½ 1/7
Mexican, do. do.		/3½ /4½
Tobasco, do. do.		/4 /5½
Honduras, do.		/4½ /6
Box, Turkey, ton		4/0/0 25/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		6/0/0 22/0/0
Satin, St. Domingo,		0/5 0/10

TIMBER (*continued*).

Satin, Porto Rico		0/0/6 0/1/6
Walnut, Italian		0/0/3 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/4/6 0/0/0
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12/6
Do. Staffordshire, in London		6/5/0 7/10/0
COPPER—British cake and ingot		52/15/0 53/5/0
Best selected		53/5/0 53/15/0
Sheets, strong		58/10/0 59/10/0
Chili bars		49/11/3 0/0/0
YELLOW MTL	lb.	5d. 5½d.
LEAD—Pig		
Spanish	ton	13/12/0 0/2/0
English	com. brands	13/10/0 13/15/0
Sheet, English	6 lbs. per sq. ft. and upwards	14/15/0 0/0/0
Pipe		15 5 0 0/0/0
ZINC—English sheet	ton	20/5/0 0/0/0
Vieille Montagne		21/5/0 0/0/0
Spelter		17/10/0 17/12 6
TIN—Straits		62/3/6 0/0/0
Australian		62/15/0 63/5/0
English Ingots		65/5/0 66/5/0
Banca		62/0/0 0/0/0
Billiton		59/15/0 60/0/0

OILS.

Linseed	ton	15/0/0 0/0/0
Cocoanut, Cochin		27/15/0 0/0/0
Do. Ceylon		24/0/0 0/0/0
Palm, Lagos		24/10/0 0/0/0
Rapeseed, English pale		27/10/0 27/15/0
Do. Brown		27/0/0 27/10/0
Cottonseed ref.		25/17/6 26/0/0
Olein		18/10/0 19/10/0
Lubricating U.S.		0/0/3 0/0/6
Do. black		0/0/0 0/0/0
TAR—Stockholm	barrel	22/0 0/0/0
Archangel		0 12/6 0/0/0
Turpentine		29 5/0 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ACCRINGTON.—Accepted for the construction of filter-beds, covered reservoir, engine-house, boiler-house, chimney, &c., Cliffe, Great Harwood, for the Accrington District Gas and Water Board:—

H. Fetherby & Son, Burnley £11,718

AYLESBURY.—For the construction of retaining walls to terraces in Buckingham-road and Walton-road, for the Urban District Council. Mr. J. H. Bradford, Surveyor, 9, Rickford's Hill, Aylesbury:—

	Buckingham-road.	Walton-road.
Senior & Clarke	251 0 0	276 16 6
W. Y. Green & Co., Walton-street, Aylesbury*	£185 0 0	£220 0 0
H. T. Grimsdale	£435 0 0	

* Recommended for acceptance.

BEAUMARIS.—For additions to the County School, for the Governors of Beaumaris County School. Mr. Jos. Owen, architect, Menai Bridge:—

W. Daniel	£960	E. Parry	£830
Jones & Williams	900	R. Owen, Menai Bridge*	785

* Recommended for acceptance.

BEDFORD.—For sewering and road-making on the remaining portion of the "Saint Cuthbert's Glebe Building Estate," Bedford, for Messrs. Hobson & Martin. Mr. Richard Lund, surveyor, Bedford:—

H. A. Williamson	£1,265 0 0	T. H. Coleman	£1,233 4 20
G. Harrison	1,257 0 0	Rootham & Jenkings	1,170 6 9
G. E. Fathers	1,242 17 7	G. T. Jarvis*	1,157 19 0

* Accepted.

BEXLEY.—For the construction of about 653 yards of pipe sewers, Halfway-street-road and Days-lane, for the Bexley Urban District Council. Mr. E. Reeve Boulter, Surveyor, Council Offices, Bexley Heath:—

For Materials, Team Labour, &c.

Quenast Granite.—C. M. Manuelle, Lime-street, E.C.
Kentish Ragstone.—Beurteast & Sons, Maidstone.
Surface-picked Flints.—Thomas Wood, Crockenhill, Kent
Granite Curb and Setts.—Gordon & Sons, Annalong, Newry
Water White Oil.—John Snowden, Bexley Heath
Disinfectants.—Sanitas Company, Bethnal Green. E.
Manganate of Soda.—Kirkpatrick, Barr, & Co., Cullum-street, E.C.
Stoneware Pipes.—Wragg & Sons, Swanlincote
Hire of Steam Roller.—Thomas Wood, Crockenhill, Kent

} At Schedule of Prices.

Team Labour.

R. & J. Butler, Bexley Heath
Amos Penfold, Bexley Heath
Edward Watkins, Bridgen, Bexley

BRIGHTON.—For proposed new kitchen and sanitary improvements at "Dann's Creamery," 200, Western-road, Brighton, for the South of England Dairies, Limited. Mr. William C. F. Gillam, architect, 162-163, North-street, Brighton:—

J. Barnes	£701 10	W. Brown & Son	£596 0
E. Watts	658 0		

* Accepted.

BRIGHTON.—For proposed new lithographing and printing works, Meeting House-lane, Brighton, for Mr. F. V. Hadlow. Mr. William C. F. Gillam, architect, 162-163, North-street, Brighton:—

W. Botting & Son	£1,560	G. Lockyer	£1,416
W. Brown & Son	1,459	Holloway Bros.	1,393
J. Barnes	1,431	Lynn & Son	1,344
Manwaring & Son	1,428	T. & W. Garrett*	1,315

* Accepted provisionally.

CHESTERFIELD.—For the execution of private street works, Shepley-street, and Malkin-street, for the Chesterfield Corporation. Mr. H. E. Featherstone, Borough Surveyor, Chesterfield:—

Shepley-street.

Clarke Brothers	£595 0 0	R. Holmes & Co., Chesterfield*	£399 0 0
G. Hall	482 14 9		
R. Peck	445 0 0		

Malkin-street.

Clarke Brothers	£235 0 0	R. Holmes & Co., Chesterfield*	£156 0 0
R. Peck	230 0 0	G. Hall	184 2 0

* Accepted.

ELGIN.—For the erection of two blocks of artisans' dwellings, at Maisondieu, for the Elgin Building Company, Ltd. Mr. G. Sutherland, architect, Elgin:—

Masonry.—A. McKerron
Carpentry.—Lillar & Sutch
Plastering.—A. McIver
Plumbing.—Lyon & Sons
Slating.—E. Ogilvie
Painting.—J. Barnes

} £2,060

[All of Elgin.]

HANWELL.—For erecting a pair of semi-detached villas in Cambridge-gardens for Mr. John Harris. Messrs. Howgate, Leeds & Keith, architects, 70, Gower-street, W.C.:—

B. Myning & Son	£1,658	A. J. Browning*	£1,000
J. Nye	1,493		

* Accepted.

HOUNSLOW.—Accepted for alterations and repairs to the "King's Arms," for Messrs. Fuller, the Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick:—

Hiscock £281

KING'S NORTON.—Accepted for erecting wrought-iron entrance gates, 8 ft. boundary, and ornamental railing, for the Guardians of the King's Norton Union. Mr. Joe H. Webb, C.E., 23, Valentine-road, King's Heath, Worcestershire, Quantities by engineer:—

Bayliss, Jones, & Bayliss, Wolverhampton £750

[Engineer's estimate, £789.]

KING'S NORTON.—For building a dwarf wall, piers, &c., for the Guardians of the King's Norton Union. Mr. Joe H. Webb, C.E., 23, Valentine-road, King's Heath, Worcester. Quantities by engineer:—

T. Loud	£169 10 0	Wm. Bishop, King's Heath*	£148 19
F. W. Halward	166 4 1		
Ed. J. Charles	155 0 0		

* Accepted.

[Engineer's estimate, £143.]

LONDON.—For erecting four houses on the Castle Hill House Estate, Ealing. Messrs. Howgate, Leeds, & Keith, architects, 70, Gower-street, W.C. Quantities by Mr. L. J. Williams:—

Higgs & Hill	£12,494 0	Adamson & Sons	£11,578 0
W. Whiteley	12,465 0	W. Nash	11,345 0
E. Lawrence & Sons	12,335 0	J. Nye*	10,970 10
G. W. Pearce	11,708 0		

* Accepted.

LONDON.—For erecting dwellings, stables, and stores, Wharfdale-road, King's Cross, N., for Messrs. W. Plaistow & Co. Messrs. Howgate, Leeds, & Keith, architects, 70, Gower-street, W.C.:—

W. Whiteley	£3,496	Lawrence & Sons	£3,040
Clarke & Mannooch	3,047	G. S. S. Williams & Sons*	2,835

* Accepted.

LONDON.—For erecting a billiard-room, &c., at Park House, Holly Park, Crouch Hill, N., for Mr. H. Grimsdale. Messrs. Howgate, Leeds & Keith, architects, 70, Gower-street, W.C. Quantities by Mr. L. J. Williams:—

W. Whiteley	£1,089	Lawrence & Sons	£978
Williams & Son	977	G. L. Kirby*	837
Clarke & Mannooch	917		

* Accepted.

LONDON.—For bar fittings, &c., at the "Kentish Drovers," Old Kent-road, for Mr. Carpenter. Messrs. Warring & Nicholson, architect, Parliament-street, Westminster:—

W. L. Simpson & Mabe ..... £233 | Saunders £231

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
Town Hall and Law Courts	Cardiff Corp.	500*l.* ; 300*l.* ; 200*l.*	Dec. 4

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Reservoir, &c. on Locher Water	Renfrew C.C.	R. Gilmour, C.E. Municipal Buildings, Greenock	Sept. 24
Waterworks at Workhouse	Downpatrick Union	J. W. Montgomery, Clerk to Union, Downpatrick	Sept. 25
Rebuilding Premises	Mr. P. Gingles	E. & J. Byrne, Archt. 4, Waring-street, Belfast	do.
Farmhouse, Arlaw Banks	Rev. H. Lonsdale	F. H. Livesey, Archt. Market-pl. Bishop Auckland	do.
Twenty Villas, Barry	Barry Windsor Building Co. Ltd.	A. M. Leon, Archt. Central-chambers, Working-street, Cardiff	Sept. 27
Fifty-two Cottages	do.	do.	do.
Six Houses, Masborough	B. Smith	E. Hutchinson & Son, Surv. 18, Howard-st. Rotherham	do.
Five Artisans' Dwellings, Forres	J. Mackenzie	P. Fulton, Archt. Forres	do.
Additions, &c. to Baths	Liverpool Corp.	W. R. Court, Engr. 15, St. George-sq. Liverpool	do.
House and Shop, Collingwood-road	Mr. A. M. Atkinson	J. T. Wilson, Archt. West Hartlepool	do.
Roadworks	Knutsford U.D.C.	W. J. Dowres, Surv. to Council, Knutsford	do.
Roadworks	Llandaff and Dinas Powis R.D.C.	J. Holden, Engr. Council Offices, Queen's-chambers, Cardiff	Sept. 29
Roadworks	Levenshulme U.D.C.	J. Jepson, Surv. to Council, 9a, Union-rd. Stockport	do.
Ten Houses, &c. Hilderthorpe	W. Battle	J. Farnshaw, Archt. Bridlington Quay	do.
Nineteen Houses, Featherstone	Mr. W. Anderson	Garside & Keyworth, Archts. Pontefract	do.
Residence, &c. Keighley	.....	J. Jevingham, Archt. District Bank-chambers, Bradford	do.
Wharfage	Irvine Harb. Trustees	G. Thomson & Doss, C.E. 97, Wellington-st Glasgow	do.
Four Villas, Tadcaster	.....	Bronnet & Thorman, Archts. Tadcaster	do.
Drainage Work for Cemetery	Rathdown Union	Carter Draper, C.E. 26, Grosvenor-rd. Rathmines	do.
Waiting Room, Offices, &c.	do.	do.	do.
Addition to Registrar's House	do.	do.	do.
Three Labourers' Cottages	do.	do.	do.
Sewerage Works	Ham U.D.C.	Col. Seddon, Engr. 27, Bowlane, London, E.C.	Sept. 29
Limestone	Gellignar and Rhigos R.D.C.	W. Bevan, Highway Surv. Deri, viâ Cardiff	do.
Offices and Extensions to Mill	B. Vickerman & Sons	J. Berry, Archt. 9, Queen-street, Huddersfield	do.
Buildings, Aviemore (two contracts)	Highland Ry. Co.	W. Roberts, Engr. Inverness	do.
Sewer Works	Tanfield U.D.C.	R. Heslop, Surv. Burnopfield, R.S.O.	do.
*Public Library	Southwark Vestry	Phipps & Jackson, 26, Mecklenburg-sq. W.C.	do.
Epileptic Block at Workhouse Infirmary	Guardians	W. H. Ward, Archt. Paradise-street, Birmingham	do.
Fifty Cottages, Tredegar	.....	T. R. Phillips, Archt. Old Bank-chambers, Pontypridd	do.
Additions to Hotel, Hemsworth	.....	R. & W. Dickson, 5, Eastgate, Barnsley	do.
*Repairs and Materials	War Department	Commanding R.E. Headquarters Offices, Stanhope Lines, Aldershot	do.
Painting, &c. Rate Collector's Offices	Gateshead Corporation (Health Committee)	J. Bewar, C.E. Town Hall	do.
Painting, &c. Sheriff Hill Hospital	do.	do.	Sept. 30
Alterations, &c. Barry School	Glamorgan C.C.	County Surv. Town Hall, Bridgend	do.
Alterations to Farmhouse, Greenham, Bargoed	Glamorgan County Governing Body	W. E. R. Allen, Glamorgan County Offices, Westgate-street, Cardiff	do.
Painting, &c. Cemetery Chapels, &c	Darnell Burial Board	W. Reid, Clerk to the Board	do.
House, Nunthorpe Station	J. J. Erotton	R. Moore, Archt. 7, Albert-road, Middlesbrough	do.
Continuous Brick Kiln	Durham City & Shincliffe Brick and Tile Works Co.	J. Curry, Manager, Chilton Moor, Fence Houses	do.
Alterations, &c. Premises, Bridlington	Hardwick & Sons	Hardwick & Sons, Quay-rd. Bridlington	do.
Business Premises	Ipswich Co-op. Soc.	Rade & Johns, Archts. Cornhill Chmbrs. Ipswich	do.
*Extension Carriage Painting Shop, Derby, and Schools, near Alfreton	Midland Railway	Archt. Cavendish House, Derby	Oct. 1
Medical Officer's Residence, &c. Arklow	Rathdrum Union	B. Manning, Clerk, Workhouse, Rathdrum	do.
Boiler House, &c. South Stoneham Union Workhouse	Kai Guardians	W. H. Mitchell, Son, & Gutteridge, Archts. 9, Portland-st. Southampton	do.
Alterations, &c. Magheragall Church	.....	Blount, Archt. Atlantic Bldgs. Waring-st. Belfast	Oct. 2
County School, Hawarden	.....	Grayson & Ould, Archts. 21, James-st. Liverpool	do.
Sewerage Works	Douglas (Isle of Man) Corp.	Stevenson & Burstal, Engrs. 28, Parliament-st. Westminster, London	do.
Shop, &c. Walton	Freehold Land Soc.	Office of Soc. Prince's-st. Ipswich	do.
*Repairs, Cleaning, Painting, at Infirmary	Croydon Union	T. West, 23, Coombe-rd. Croydon	Oct. 4
Chimney Shaft	Rotherhithe Vestry	Norman Scourie, Town Hall, Rotherhithe	do.
Cottage, Frongoch	Bala & Festiniog Ry. Co.	Station Master, Bala Station	do.
Classroom, Writtle	Writtle Sch. Bd.	A. P. Lindsell, Clerk	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Water Supply and Sewage Works, Clandeboy	.....	J. Lanyon, Engr. Northern Bank Chmbrs. Royal-avenue, Belfast	Oct. 4
Six Houses, Tir Phil-road	.....	G. Kenshole, Archt. 26, Duffryn-ter. New Tredegar	do.
*Stoneware Pipe Sewers, Iron Pipes, Construction Pumping Station Buildings	Southend-on-Sea Corp.	J. Mansergh, 5, Victoria-street, S.W.	do.
*Constructing Stables and Fixing Water-softening Plant	Islington Vestry	J. Patten Barber, Vestry Hall	do.
*Supplying and Laying Norway Kerb, Stone, Gravel, Hardcore, &c. &c.	Romford U.D.C.	The Surv. Council Offices, Romford	do.
*Band Stand, &c. Bethnal Green	London C.C.	Archt.'s Dept. 17, Pall Mall East, S.W.	Oct. 5
*New Well, Alterations to Engine House, Pumps, Engines, &c.	Brentford U.D.C.	Newell Parr, Clifden House Boston-road, Brentford	do.
*Pipe Sewers and Manholes, Granite Kerb, Footpath	Leyton U.D.C.	W. Dawson, Town Hall, Leyton	do.
*Repair of Road	County Borough of Croydon	Boro. Road Surv. Town Hall	do.
Alterations to Workhouse	Petworth Union	A. F. Mant, Clerk to Union, Petworth	do.
Bridges, Frome & Llangenoyd	G.W.R. Co.	Engr. Paddington Station	do.
Bridge, Oxford (Contract 2)	do.	do.	do.
*Materials (various)	Coventry Corp.	J. E. Swindlehurst, Town Hall	do.
Main Concentrating Sewers, &c.	Glossop Corp.	Lomax & Lomax, Engrs. Grosvenor-chambers, Manchester	do.
Alterations to Workhouse	The Guardians	A. F. Mant, Clerk, Petworth	do.
*Laundry	Wandsworth and Clapham Union	T. W. Aldwinckle, 1, Victoria-street, S.W.	Oct. 6
Laundry, Lanchester Workhouse	Lanchester Union	G. T. Wilson, Archt. 121, Durham-rd. Black Hill	do.
Stables	Weybridge U.D.C.	J. S. Crawshaw, Surv.	do.
*Sewerage Works	Westminster Vestry	G. R. Wheeler, Town Hall, Caxton-street, S.W.	do.
*Making-up Streets	Southend-on-Sea Corp.	A. Fidler, Clarence-road, Southend	do.
*Granite	Gravesend T.C.	Borough surveyor	do.
School	.....	W. Clement Williams, Archt. 29, Southgate, Halifax	do.
Central Police Station, Belfast	.....	City Surv. Belfast	Oct. 7
Steel Roof over Market, &c.	Coombes & Co. Ltd.	T. Martin, Surv. Radstock	do
Offices, Mailroom, &c.	do.	do.	do.
Painting, &c. 53, Charles-st. Cardiff	Cardiff Union	A. J. Harris, Cardiff Union Offices, Queen's-chmbrs. Cardiff	Oct. 9
Class-room, Garn Schools	Blaenavon Sch. Bd.	Lansdowne & Griggs, Archts. Newport, Mon.	do.
Spittal Sewerage	Sanitary Authority, Berwick-on-Tweed	R. Dickinson, Boro Surv. U.S.A.-bldgs. Berwick	do.
Asylum Blocks, &c.	Commrs. for Control of Lunatic Asylums	Board of Control of Lunatic Asylums, Custom House, Dublin	do.
*Making-up Road Sewers, &c.	Beckenham U.D.C.	J. A. Angell, Council Offices	Oct. 11
Alterations to Cymmer Schools, Porth	Ystradyfodwg Sch. Bd.	J. Rees, Archt. Hillside Cottage, Pentre	do.
Porter's Lodge, Hospital, Haverstock Hill	.....	Pennington & Son, Archts. Hastings House, Norfolk-street, Strand	Oct. 13
*Gate Porter's Lodge	Met. Asylums Board	Offices, Norfolk House, Norfolk-street, W.C.	do.
*Isolation Hospital	Enfield U.D.C.	R. Collins, Court House, Enfield	do.
*Stoneware and Iron Pipe Sewers, Manholes, &c.	Billericay R.D.C.	Messrs. Jones, 23, Parliament-street, S.W.	7 do.
*Erecting New City Hall	Godstone Union	T. Elliff, Caterham, Surrey	Oct. 15
*Cottage Home	Belfast Corp.	R. Thomas & Son, 7, Queen Anne's-gate, S.W.	Oct. 21
*Alterations, Surface Drainage	Hartley Wintney Union	Union House, Winchfield	Oct. 22
*Dust Destructor Building and Chimney	War Department	R.E. Office, N. Aldershot	No date
Passenger Station, &c. Port St. Mary	do.	do.	do.
Two Houses, Whingate, Armley	Isle of Man Ry. Co.	G. H. Wood, Sec. and Manager, Douglas	do.
House, Roundhay	.....	Ambler & Bowman, Archts. 9, Park-place, Leeds	do.
Pair of Semi-detached Houses, Lidget Park Estate	Mrs. Lilley	do.	do.
Sixteen Houses, Preston	Mr. K. Banks	do.	do.
Street Works, Unthank's-road, Norwich	L. & N.W. & L. & Y. Ry. Co.	G. F. Avaline, Estate Office, Central Station	do.
Alterations, &c. Waterloo Hotel, Swansea	.....	D. Hall, Swardeston	do.
Caretaker's House, Whingate-road School	F. Bradford	Margrave & Pocock, Archts. Metal Exchange, Swansea	do.
Offices, &c. Atlas Brewery, Newbury	Leeds School Board	W. & Braithwaite, Archt. to the Board	do.
National School	South Berks Brewery Co. Ltd.	J. H. Money, Archt. The Broadway, Newbury	do.
Alterations, Royal Hotel, Kirkby Lonsdale	.....	P. M'Names, Ballaghy, Castletown, R.S.O. co. Londonderry	do.
Villa Residence, Whitehead, Belfast	D. J. Lanigan	J. Kassell, Archt. Kirkby Lonsdale	do.
		T. Pentland, Archt. 35, High-street, Belfast	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Architect and Surveyor	Cutlers' Company	100*l.* per annum	Sept. 28
*surveyor	Woodford U.D.C.	200*l.* per annum	Oct. 4
*Chief Clerk (Engineer's Department)	Coventry Corp.	130*l.* per annum	Oct. 5
*Two Road Foremen	do.	2*l.* per week each	do.
*Architectural Assistant	do.	130*l.* rising to 180*l.* per annum	do.
*Building Inspector	do.	130*l.* per annum	do.

Those marked with an asterisk (*) are advertised in this Number. *Contracts, pp.* iv. vi. *&* viii. *Public Appointments, pp.* xviii. xix. *&* xxi.

not yet complete, and his Lordship, by consent, directed that the motion should stand over for one week.

ALLEGED INTERFERENCE WITH ANCIENT LIGHTS.

IN the case of Jermyn *v.* Cooke, Mr. Justice Ridley, sitting as Vacation Judge in the Chancery Division, on the 22nd inst., gave the plaintiff leave to serve notice of motion with the writ on the defendant returnable for next week, the application being to restrain the defendant from building back his premises so as to interfere with the plaintiff's ancient lights. Council for the plaintiff said that he had in support of his application an affidavit by an architect, who said that if the building by the defendant went on it would seriously interfere with the plaintiff's lights.

MEETINGS.

SATURDAY, SEPTEMBER 25.

Architectural Association.—Summer visit to the Grove Hospital, Tooting. Mr. A. H. Tiltman, architect.

Devon and Exeter Architectural Society (Plymouth, Devonport, and Stonehouse Branch).—Visit to Truro Cathedral. Depart from Plymouth (G. W. Railway) 11.5 a.m.

MONDAY, SEPTEMBER 27.

Sanitary Institute (Lectures for Sanitary Officers).—Introductory Lecture: "The Outcome of Sanitation," by Dr. Louis Parkes. 8 p.m.

WEDNESDAY, SEPTEMBER 29.

Builders' Foremen and Clerks of Works Institution.—Quarterly meeting of the directors. 8 p.m.

THURSDAY, SEPTEMBER 30.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. Manley, M.A., on "Sanitary Law, English, Scotch, and Irish; General Enactment Public Health Act, 1875; model by-laws, &c." 8 p.m.

SATURDAY, OCTOBER 2.

British Institute of Certified Carpenters. — Visit

to the new baths, &c., Shoreditch, at 3 p.m. Meeting at Carpenters' Hall at 6 p.m. Lecture by Mr. J. Clark on "Geometry Applied to Carpentry."

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

22,259.—CRAMP FOR JOINERY, &c.: *H. D. Needham.*—Inventor claims in an improved cramp for joinery, &c., the combination with a bar provided with a rack of a sliding jaw fitted on such bar, a wedge connected thereto and a rack at the lower end of the wedge engaging with the rack on the bar. Modifications are described.

22,656.—FIRE GRATES: *R. D. McKellen and Another.*—Invention consists in the use of a hollow casing or passage connecting two or more fireplaces situated in rooms vertically above or below one another, for the purpose of transferring the fire from one fireplace to another, and in a movable fireplace adapted thereto.

22,849.—BALUSTER FOR HANDRAILS: *T. Forbes.*—Inventor claims an arm-formed guard which projects upwards and forms part of a combined baluster and guard.

28,009.—SAWING APPARATUS: *S. Mundey.*—Inventor claims in sawing machines an adjustable swinging arm, connected with a saw arm, attached to spindle carrying counterpoise, whose weight operates saw in one direction to some degree. The parts are supported by a frame which may be taken to pieces if required, and there is a clamp for holding wood operated on.

4,399.—BRICK, &c., KILNS: *G. Pitts.*—Inventor claims in his kilns the two principles (1) of firing from one side only of each kiln, and (2) of working certain valves for down draught kilns, by which burner has entire control of fire.

4,606.—FLUSHING CHAMBERS, &c: *S. H. Adams.*—Inventor claims the use of a flushing chamber so constructed that, the impure liquid in passing through its filter (the flushing tank proper) shall be filtered in passage; also the use of a screening chamber, sludge plug, &c.

5,532.—WATER-CLOSETS: *D. S. Wallace.*—Inventor claims in a syphon water-closet the combination of a bowl, the supporting base, with means for flushing same, a discharge passage forming a long syphon leg, and a variety of subsidiary combinations.

7,493.—URINALS: *M. J. Adams.*—Invention consists in portions of a urinal so constructed that they may serve either for the front or back of a complete apparatus, and so that the wings shall overlap the other portions sufficiently to cover the roughness by ties in the process of manufacture. Various modifications are described and claimed.

NEW APPLICATIONS FOR LETTERS PATENT.

SEPTEMBER 6.—20,405, W. Bryan, Preventing Water-supply Pipes Freezing or Bursting.—20,407, T. Rhodes and R. Gaunt, Silencing the Noise in Flushing Cisterns.—20,414, W. Thomson, Glass Tiles.—20,417, J. Taylor, Joint for Sewage and other Pipes.—20,421, G. Jensen, Testing and Tracing Leakages in Gas-pipes and Gas-pipes Systems, &c.—20,426, H. David, jun., Cupboard Turn.—20,454, D. A. Kard, Door Opener and Closer.

SEPTEMBER 7.—20,491, R. Simpson, Building of Arches upon Metal Girders or Wooden Beams.—20,520, E. Giles, Dry Water-pipe System for Houses.—20,550, F. Trier, Stoneworking Machinery.—20,558, T. Rhodes and R. Gaunt, Water-closets.

SEPTEMBER 8.—20,626, C. Udall, Wall Plugs.—20,619, T. Scotland, Window Sashes.—20,665, E. Fox, Non-inflammable Wood.—20,670, T. Holden and C. Major, Manufacture of Cement.—20,681, F. Brown, Kitcheners.

SEPTEMBER 9.—20,747, T. and J. Claughton, Syphon-flushing Cisterns.—20,753, J. Goddard and F. Johnson, the Adaptation to Sanitary Earthenware and Earthenware for Shop Windows, Counters, &c., of a Marbled or Veined Body.—20,766, S. Mills, Water-closet Pans and their Service Pipes.

SEPTEMBER 10.—20,795, J. Hulls, Glasses or Glazings for Windows, &c.—20,809, J. McNaughton, Water Taps.—20,856, J. and T. Hollis, Wood Block Flooring.—20,858, R. Paver, Window Sash Fasteners.

SEPTEMBER 11.—20,873, W. Mavitta, jun., Folding Joints of Measuring Rules, &c.—20,877, A. Laing, Window Sash Fasteners.—20,944, J. Duckett & Son, Limited, and Others, Water-closets.

PROVISIONAL SPECIFICATIONS ACCEPTED.

17,653, J. Lawrence, Gully Trap, Applicable to all Traps.—16,302, R. Packer, Sash Fasteners.—17,972, J. Shettle, Sash Fastening Devices, &c.—18,360, J. Keylock, Number Plates for Street and Other Doors.—19,715, W. McLaren, Opening, Closing, and Fastening Windows and Ventilators.—19,753, C. Brooke, Fasteners for Window Sashes.—19,969, J. Leather, Ventilating Appliances.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

22,234, T. Skerman, Ventilators and Chimneys.—23,453, H. Davies, Joiner's Bench Stop.—24,095, J. Knights, Making Coloured Tiles for Floors or Building Purposes.—24,621, J. Bonehill, Cowl or Chimney Pipe.—25,225, A. Fludder and G. Innes, Bricks, Tiles, &c.—16,879, J. Crawford and J. Holmes, Outbuildings.—17,951, J. James, Manufacture of a Part of Knot-Holding Attachments for the Cords or Lines for Window Blinds, Sashes, &c.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 8.—By HEDLEY & SON (at Newcastle).

Ponteland, Northumberland.—"Prestwick Mill Farm," 111 a. 2r. 25 p., f. £4,280
September 9.—By JOHN FRANCIS (at Llanelly).
Llangendeirne, Carnarvon.—"Llwynpatris Farm," 42a. 1r. 33 p., f. 260
Five freehold houses and 2 a. 0r. 39 p. 335
"Pantyff-y-Non," and 5 a. 3r. 10 p., f. 200
September 10.—By CUMBERLAND & SONS (at Derby).
Hilton, Derby.—"Hargate Manor Farm," 163 a. 0r. 2 p., together with the "Swan Inn" and 1a. 0r. 13 p., f. 6,150
September 11.—By BRUTON, KNOWLES, & Co. (at Gloucester).
Maisemore, Glos.—"The Maisemore Park Estate," 199 a. 2r. 3 p., f. 14,800
An enclosure of land, 14 a. 0r. 23 p., f. 1,100
Ashleworth, Glos.—Enclosures of land, 20 a. 2r. 21 p., f. 1,000

September 13.—By F. VARLEY.

Leyton Green.—8, High-st., f., r. 28*l.* £350
Leytonstone.—22, 22a, 23, and 23a, Cathall-rd., f., r. 54*l.* 12s. 490
Hoxton.—74, Bridport-pl., u.t. 34½ yrs., g.r. 8*l.* 5s. 350
Barnsbury.—98, Richmond-rd., u.t. 8½ yrs., g.r. 6*l.* 4s. 8d. 195
Stepney.—18, Copley-st., u.t. 45½ yrs., g.r. 4*l.*, r. 40*l.* 350

By MILLER & ABBOTS (at Bicester).

Ludgershall, Bucks.—"D'Oyley's Farm," 128 a. 0r. 28 p., f. 2,850

September 14.—By C. H. BROWN.

Westminster.—28, Romney-st., f., r. 48*l.* 2s. 530

By FLEURET, SONS, & ADAMS (at Masons' Hall Tavern).

Kennington Pk.-rd.—"The Hanover Arms" p.-h., u.t. 47½ yrs., r. 120*l.*, with goodwill 38,800
Fulham.—Fulham-rd., "The King's Arms" p.-h., u.t. 49 yrs., r. 100*l.*, with goodwill 12,500
Limerston-st., "The Odell Arms" p.-h., u.t. 29½ yrs., r. 100*l.*, with goodwill 7,710

By J. HART BRIDGES & SONS (at Masons' Hall Tavern).

Acton.—High-st., "The White Hart" p.-h., with goodwill; also two residences adjoining, u.t. 28½ yrs., r. 175*l.* 9,000

By C. F. MOORE (at Devizes).

Avebury, Wilts.—"The Beckhampton Estate," area 622 a. 3 r. 10 p., f. 5,200
Two freehold residences 250

By J. T. WOOLLEY (at Salisbury).

Wylye, Wilts.—"Wylye Farm," 109 a. 1 r. 28 p., f. 2,500

By NOCK & JOSELAND (at Kidderminster).

Alveley, Salop.—"The Low Farm," 175 a. 3 r. 28 p., f. 4,425

September 15.—By DOUGLAS YOUNG & CO.

Clapham.—28, Fentiman-rd., u.t. 28 yrs., g.r. 6*l.* 10s., r. 42*l.* 235
9, Binfield-rd., u.t. 26½ yrs., g.r. 6*l.* 13s. 4d., e.r. 50*l.* 375
Wandsworth.—17, Wilcox-rd., u.t. 16½ yrs., g.r. 3*l.* 10s., r. 36*l.* 8s. 100
Brockley.—17, Brockley-rd., u.t. 64½ yrs., g.r. 4*l.* 14s., r. 30*l.* 260

By F. JOLLY & CO.

Poplar.—72, Bath-st., u.t. 47 yrs., g.r. 4*l.* 170

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	£ s. d.
Teak, E.I.	load	10/10/0 15/10/0
Sequoia, U.S.R.co.		1/8 1/10
Ash, Canada	load	3/5/0 4/10/0
Birch, do.		4/5/0 6/0/0
Elm, do.		4/0/0 5/5/0
Fir, Dantsic, &c.		2/5/0 4/5/0
Oak, do.		2/10/0 3/10/0
Canada		5/10/0 6/10/0
Pine, Canada red		0/0/0 0/0/0
Do. Yellow		2/0/0 4/0/0
Lath, Dantsic, fath		4/10/0 5/10/0
St. Petersburg		5/0/0 6/10/0
Wainscot, Riga, &c., log		1/10/0 3/15/0
Odessa, crown		1/10/0 2/15/0
Deals, Finland		
end & 1st std	120	8/0/0 8/10/0
Do. 4th & 3rd		8/0/0 8/10/0
Do. Riga		6/10/0 7/10/0
St. Petersburg, 1st yellow		10/0/0 12/10/0
Do. 2nd yellow		9/0/0 10/15/0
Do. white		8/10/0 10/10/0
Swedish		9/0/0 15/10/0
White Sea		9/10/0 16/0/0
Canada, Pine 1st		20/10/0 26/10/0
Do. do. 2nd		15/0/0 27/10/0
Do. do. 3rd, &c.		7/10/0 11/0/0
Do. Spruce, 1st		10/10/0 12/0/0
Do. do. 3rd and 2nd		8/0/0 9/0/0
New Brunswick		7/10/0 8/0/0
Battens, all kinds		5/0/0 10/0/0
Flooring boards, sq., 1 in. prep. 1st		0/8/6 0/15/6
Do. 2nd		0/7/0 0/10/0
Other qualities		0/5/0 0/6/0
Cedar, Cuba, ft.		/4½
Honduras, &c.		/3½ /4½
Mahogany, Cuba		/5 /6½
St. Domingo, cargo av.		/4½ /5½
Mexican, do. do.		/3½ /4½
Tobasco, do. do.		/4 /5½
Honduras, do.		/4½ /6
Box, Turkey, ton		4/0/0 15/0/0
Rose, Rio		7/0/0 14/0/0
Bahia		4/0/0 10/0/0
Satin, St. Domingo		0/0'5 0'1/0

TIMBER (*continued*).

Satin, Porto Rico		0/0/6 0/2/6
Walnut, Italian		0/0/3 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/4/6 0/0/0
Bar, Welsh, in London		5/15/0 5/17/6
Do. do. at works in Wales		5/10/0 5/12/6
Do. Staffordshire, in London		6/5/0 7/10/0
COPPER—British cake and ingot		52/15/0 53/5/0
Best selected		53/5/0 53/15/0
Sheets, strong		58/10/0 59/10/0
Chili bars		49/11/3 0/0/0
YELLOW MTL	lb.	5d. 5½d.
LEAD—Pig		
Spanish	ton	13'10/0 0/0/0
English com. brands		13'10/0 13'15/0
Sheet, English 6 lbs. per sq. ft. and upwards		14'15/0 0/0/0
Pipe		15 5 0 0/0/0
ZINC—English sheet	ton	20/5/0 0/0/0
Vieille Montagne		21/5/0 0/0/0
Spelter		17/10/0 17/12 6
TIN—Straits		62/3 6 0/0/0
Australian		62/15/0 63/5/0
English Ingots		65/5 0 66/5/0
Banca		61/0/0 0/0/0
Billiton		59/15/0 60/0/0

OILS.

Linseed	ton	13/0/0 0/0/0
Cocoanut, Cochin		27/15/0 0/0/0
Do. Ceylon		24/0/0 0/0/0
Palm, Lagos		24/10/0 0/0/0
Rapeseed, English pale		27/10/0 27/15/0
Do. Brown		27/0/0 27/10/0
Cottonseed ref.		25/17/6 26/2/6
Oleine		18/10/0 19/10/0
Lubricating U.S.		0/6/3 0/7/6
Do. black		0/0/0 0/0/0
TAR—Stockholm	barrel	0/0/0 0/0/0
Archangel		0 12/6 0/0/0
Turpentine		30 3/0 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated by the name and address of the sender: and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

ACCRINGTON.—Accepted for the construction of filter-beds, covered reservoir, engine-house, boiler-house, chimney, &c., Cliffe, Great Harwood, for the Accrington District Gas and Water Board:—
H. Fetherby & Son, Burnley £12,726

AYLESBURY.—For the construction of retaining walls to terraces in Buckingham-road and Walton-road, for the Urban District Council. Mr. J. H. Bradford, Surveyor, 2, Rickford's Hill, Aylesbury:—

	Buckingham-road	Walton-road
Senior & Clarke	252 8 9	296 16 6
W. Y. Green & Co., Walton-street, Aylesbury*	£185 0 0	£220 0 0
H. T. Grimsdale	£435 0 0	

* Recommended for acceptance.

BEAUMARIS.—For additions to the County School, for the Governors of Beaumaris County School. Mr. Jos. Owen, architect, Menai Bridge:—

W. Daniel	£760	E. Parry	£820
Jones & Williams	920	R. Owen, Menai Bridge*	785

* Recommended for acceptance.

BEDFORD.—For sewering and road-making on the remaining portion of the "Saint Cuthbert's Glebe Building Estate," Bedford, for Messrs. Hobson & Martin. Mr. Richard Lund, surveyor, Bedford:—

H. A. Williamson	£1,365 0 0	T. H. Coleman	£1,233 4 10
G. Harrison	1,257 0 0	Rootham & Jeakings	1,172 6 9
G. E. Fathers	1,240 17 7	G. T. Jarvis*	1,157 19 0

* Accepted.

BEXLEY.—For the construction of about 653 yards of pipe sewers, Halfway-street-road and Days-lane, for the Bexley Urban District Council. Mr. E. Reeve Boultbee, Surveyor, Council Offices, Bexley Heath:—

For Materials, Team Labour, &c.

Quenast Granite.—C. M. Manuelle, Lime-street, E.C.
Kentish Ragstone.—Beuteast & Sons, Maidstone.
Surface-picked Flints.—Thomas Wood, Crockenhill, Kent
Granite Curb and Setts.—Gordon & Sons, Annalong, Newry
Water White Oil.—John Snowden, Bexley Heath
Disinfectants.—Sanitas Company, Bethnal Green, E.
Manganate of Soda.—Kirkpatrick, Barr, & Co., Cullum-street, E.C.
Stoneware Pipes.—Wragg & Sons, Swanlincote
Hire of Steam Roller.—Thomas Wood, Crockenhill, Kent

At Schedule of Prices.

Team Labour.

R. & J. Butler, Bexley Heath
Amos Penfold, Bexley Heath
Edward Watkins, Bridges, Bexley

BRIGHTON.—For proposed new kitchen and sanitary improvements at "Dana's Creamery," 220, Western-road, Brighton, for the South of England Dairies, Limited. Mr. William C. F. Gillam, architect, 162-163, North-street, Brighton:—

J. Barnes	£701 10	W. Brown & Son	£596 0
E. Watts	698 0	* Accepted.	

BRIGHTON.—For proposed new lithographing and printing works, Meeting House-lane, Brighton, for Mr. F. V. Hadlow. Mr. William C. F. Gillam, architect, 162-163, North-street, Brighton:—

W. Botting & Son	£1,560	G. Lockyer	£1,426
W. Brown & Son	1,459	Holloway Bros.	1,393
J. Barnes	1,431	Lynn & Son	1,344
Manwaring & Son	1,428	T. & W. Garrett*	1,315

* Accepted provisionally.

CHESTERFIELD.—For the execution of private street works, Shepley-street, and Malkin-street, for the Chesterfield Corporation. Mr. H. E. Featherstone, Borough Surveyor, Chesterfield:—

Shepley-street.

Clarke Brothers	£505 0 0	R. Holmes & Co., Chesterfield*	£379 0 0
G. Hall	482 14 9		
R. Peck	445 0 0		

Malkin-street.

Clarke Brothers	£235 0 0	R. Holmes & Co., Chesterfield*	£156 0 0
R. Peck	230 0 0	G. Hall	184 2 0

* Accepted.

ELGIN.—For the erection of two blocks of artisans' dwellings, at Maisondieu, for the Elgin Building Company, Ltd. Mr. G. Sutherland, architect, Elgin:—

Masonry.—A. McKerron
Carpentry.—Lillar & Sutch
Plastering.—A. McIver
Plumbing.—Lyon & Sons
Slating.—E. Ogilvie
Painting.—J. Barnes

£2,080

[All of Elgin.]

HANWELL.—For erecting a pair of semi-detached villas in Cambridge-gardens for Mr. John Harris. Messrs. Howgate, Leeds & Keith, architects, 70, Gower-street, W.C.:—

B. Myning & Son	£1,658	A. J. Browning*	£1,000
J. Nye	1,493	* Accepted.	

HOUNSLOW.—Accepted for alterations and repairs to the "King's Arms," for Messrs. Fuller, the Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick:—
Hiscock £161

KING'S NORTON.—Accepted for erecting wrought-iron entrance gates, 8 ft. boundary, and ornamental railing, for the Guardians of the King's Norton Union. Mr. Joe H. Webb, C.E., 23, Valentine-road, King's Heath, Worcestershire, Quantities by engineer:—
Bayliss, Jones, & Bayliss, Wolverhampton £750
[Engineer's estimate, £780.]

KING'S NORTON.—For building a dwarf wall, piers, &c., for the Guardians of the King's Norton Union. Mr. Joe H. Webb, C.E., 23, Valentine-road, King's Heath, Worcester. Quantities by engineer:—

T. Loud	£169 10 0	Wm. Bishop, King's Heath*	£148 19
F. W. Halward	156 4 1	* Accepted.	
Ed. J. Charles	155 0 0		

[Engineer's estimate, £143.]

LONDON.—For erecting four houses on the Castle Hill House Estate, Ealing. Messrs. Howgate, Leeds, & Keith, architects, 70, Gower-street, W.C. Quantities by Mr. L. J. Williams:—

Higgs & Hill	£12,494 0	Adamson & Sons	£11,578 0
W. Whiteley	12,485 0	W. Nash	11,345 0
E. Lawrence & Sons	12,335 0	J. Nye*	10,976 10
G. W. Pearce	11,708 0	* Accepted.	

LONDON.—For erecting dwellings, stables, and stores, Wharfdale-road, King's Cross, N., for Messrs. W. Plaistow & Co. Messrs. Howgate, Leeds, & Keith, architects, 70, Gower-street, W.C.:—

W. Whiteley	£3,456	Lawrence & Sons	£3,040
Clarke & Mannooch	3,047	G. S. S. Williams & Sons*	2,835
		* Accepted.	

LONDON.—For erecting a billiard-room, &c., at Park House, Holly Park, Crouch Hill, N., for Mr. H. Grimsdell. Messrs. Howgate, Leeds & Keith, architects, 70, Gower-street, W.C. Quantities by Mr. L. J. Williams:—

W. Whiteley	£1,089	Lawrance & Sons	£958
Williams & Son	977	G. L. Kirby*	937
Clarke & Mannooch	927	* Accepted.	

LONDON.—For bar fittings, &c., at the "Kentish Drovers," Old Kent-road, for Mr. Carpenter. Messrs. Warring & Nicholson, architect, Parliament-street, Westminster:—
W. L. Simpson & Mabe ..... £233 | Saunders £231

LONDON.—Accepted for building shops and flats at 5, 7, 9, and 11, Lower Kennington-lane, S.E., for Mr. E. Studwick. Mr. Percy Field, architect :—
John Welbking & Sons £2,125

LONDON.—Accepted for about 5,000 yards super of hardwood paving, Stroud Green-road, including excavation, concrete foundation for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate :—
Wm. Griffiths, Kingsland, 15s. 7d. per yard super.

LONDON.—For alterations, repairs, &c., to the "Goldsmith Arms," East Acton, for Messrs. Fuller & Co., the Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick :—

Poore & Son	£165 0	L. Leeder	£198 17
Wenborn	200 0		

Drainage.—
L. Leeder £120

LONDON.—Accepted for alterations to the "George IV.," Chiswick, for Messrs. Fuller & Co., Griffin Brewery, and Mr. J. Van, Mr. J. Hume, architect and surveyor, Chiswick :—
T. H. Adamson & Son £1,973 10

LONDON.—For repairs and alterations at "The Angel," Hammersmith, for Messrs. Fuller & Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick :—

Chambeslen Bros.	£109 0	D. Bailey	£103 0
T. Bendon	106 10	Haywood	100 0

LONDON.—For stoneware pipe sewers, View-road, Highgate, for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate :—

Williamson & Sons	£906 1 9	T. Adams	£791 12 5
F. A. Jackson & Son, Ltd.	887 0 8	J. E. Bloomfield	776 8 0
Neave & Son	867 0 0	J. A. Dunmore, Crouch End (accepted)	608 15 6

LONDON.—For road works, Inderwick-road (3rd section), for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor, Southwood-lane, Highgate :—

Williamson & Sons	£1,672 3 0	Thos. Adams	£1,481 0 10
F. A. Jackson & Son, Limited	1,658 8 10	J. E. Bloomfield, Tottenham*	1,335 1 6
W. Neave & Son	1,579 0 0	* Accepted.	

LONDON.—Accepted for tar-paving work, Gordon-road Workhouse, Peckham, for the Guardians :—
F. G. Glover, 17, Milton-road
Sheppard & Co., Milton-street, Southend-on-Sea } £357

PENSFORD.—For the erection of new schools for Stanton Drew School Board. Mr. J. Ace Beynon, architect, Coleford, Bath :—

Hughes & Weeks	£1,410	W. A. Shipp, Stokes Croft, Bristol*	1,162
S. K. Gorvett	1,376	Adams & Jefferies	1,045
Stephen Hinton	1,125	* Accepted.	
M. Durnford	1,120		

PONTLOTTYN (Glamorgan).—For erecting sixty-nine dwelling-houses, for the Building Club. Mr. W. Davis, architect, 6, Heol Evan Wynne, Pontlottyn, v.á Cardiff :—
Per house.

E. Rowlands	£158 0	M. R. Rowlands*	£146 0
Jeremiah Bowen	153 0	I. C. Davies	143 10
Francis Rhys	152 0	J. Monks & Co.	143 0
J. James & Sons	149 18	John Morgan	140 0
W. Williams & Sons	149 10	Griffiths Bros., Cemetery-road, Treslaw†	139 10
Davies Bros.	147 0		

* Cemented fronts. † Accepted.

PONTYCYWMER (Garw Valley).—For paving, curbing, &c., Richard-street and High-street, for the Ogmore and Garw Urban District Council. Mr. H. Dawkin Williams, surveyor, Blackmill, R.S.O.

Richard-street.

Mark & Williams	£930 10 4	Jenkins & Rattray	£489 7 9
Batchelor & Hall	515 7 8	David John Davies	435 10 4
Jonathan Maddocks	518 18 8	Barnes & Chaplin	382 9 6

High-street.

Mark & Williams	£930 14 8	Jonathan Maddocks	£576 18 9
Rattray & Jenkins	540 8 6	Barnes & Chaplin	566 19 4
Batchelor & Hall	997 12 3	David John Davies	262 17 1

RHAYADER (Radnorshire).—For the erection of a new north aisle and new roof to nave, &c., to Rhayader Church. Mr. S. W. Williams, architect, Rhayader. Quantities by architect :—

Thomas Lant	£1,552	Meredith	£1,443
Smith	1,511	Davies & Son	1,368
Morgan	1,477	Lloyd, Rhayader*	1,182

* Accepted.

RICHMOND.—For rebuilding "The Angel and Crown," for Messrs. Fuller & Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect, Chiswick :—

S. Hunt	£2,025	Soole & Son	£1,780
T. H. Adamson & Son	1,974	Speechly and Smith	1,775
J. Dorey & Co.	1,840		

[Exclusive of fittings.]

RYTON.—For the construction of a culvert and road improvement at Bradley, for the Urban District Council. Mr. J. P. Dalton, Engineer, Council Office, Ryton-on-Tyne. Quantities by the Engineer :—

M. D. Young	£230 9 0	R. Babe	£162 3 2
G. T. Manners	193 0 0	A. Tench, Blaydon*	155 11 5
W. Sproat	170 0 0	* Accepted.	

[Engineer's estimate, £160.]

TAUNTON.—Accepted for additions, Magdalen-street premises, for the Taunton Co-operative Society. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton. Quantities by the architect :—
T. Manning, 10, St. James-street, Taunton £584
[Two other tenders received.]

WILTON.—For building a new laundry and for other works at the workhouse. Messrs. Harding & Son, architects, 51, Canal, Salisbury. Quantities by architects :—

E. Witt	£532 9 6	T. Elliott	£470 0 0
Webb & Co.	545 0 0	F. Tryhorn	448 10 0
Vincent & Folland	499 0 0	T. Dawkins, Barford St. Martin*	412 0 0
E. Hale	498 0 0	* Accepted.	
J. Whatley	497 0 0		

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